

1/62

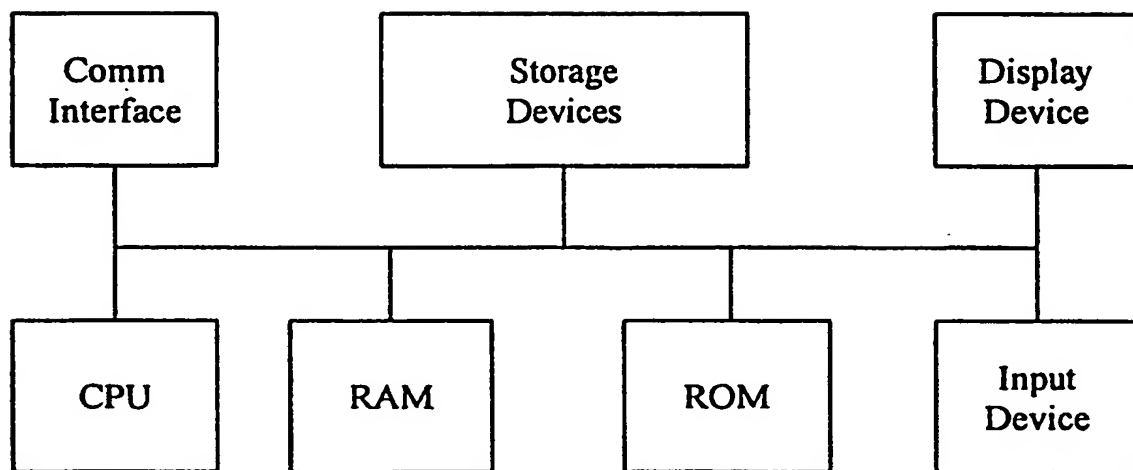


FIG. 1A

2/62

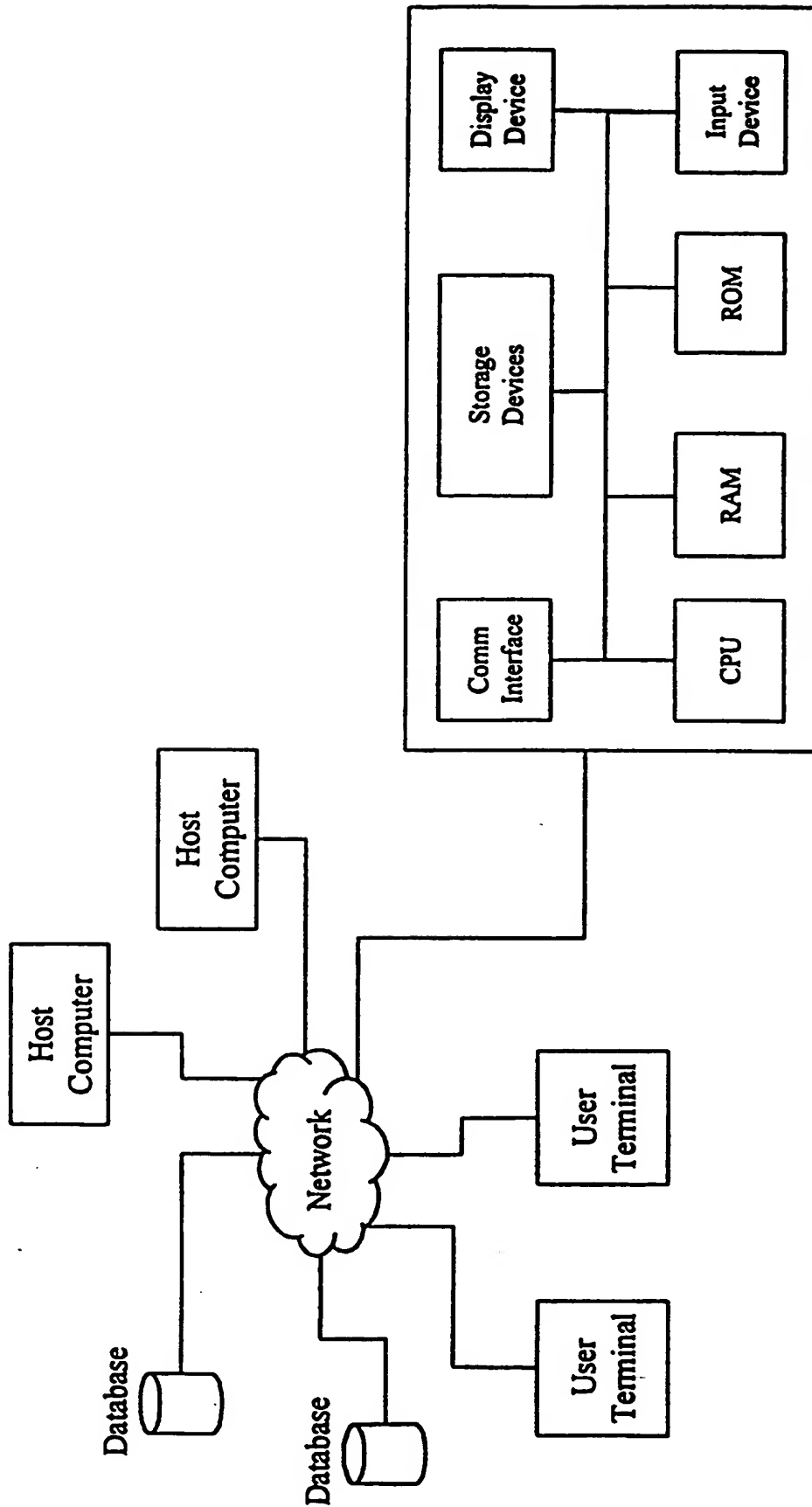
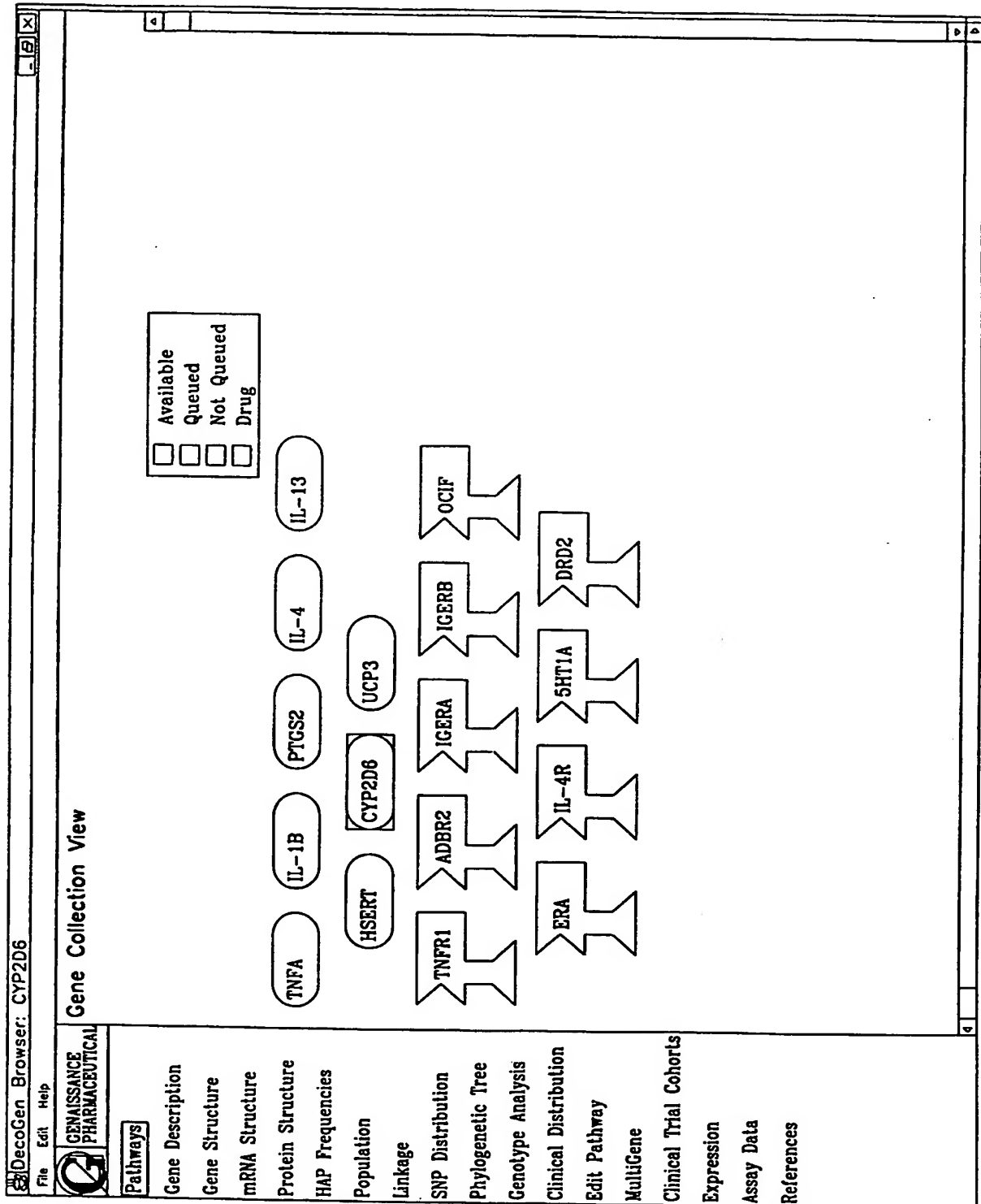


FIG. 1B

3/62

FIG. 2



4/62

FIG. 3

DecoGen Browser: CYP2D6

File Edit Help

GENAISSANCE PHARMACEUTICAL

Pathways

Gene Description

Gene Structure

mRNA Structure

Protein Structure

HAP Frequencies

Population

Linkage

SNP Distribution

Phylogenetic Tree

Genotype Analysis

Clinical Distribution

Edit Pathway

MultiGene

Clinical Trial Cohorts

Expression

Assay Data

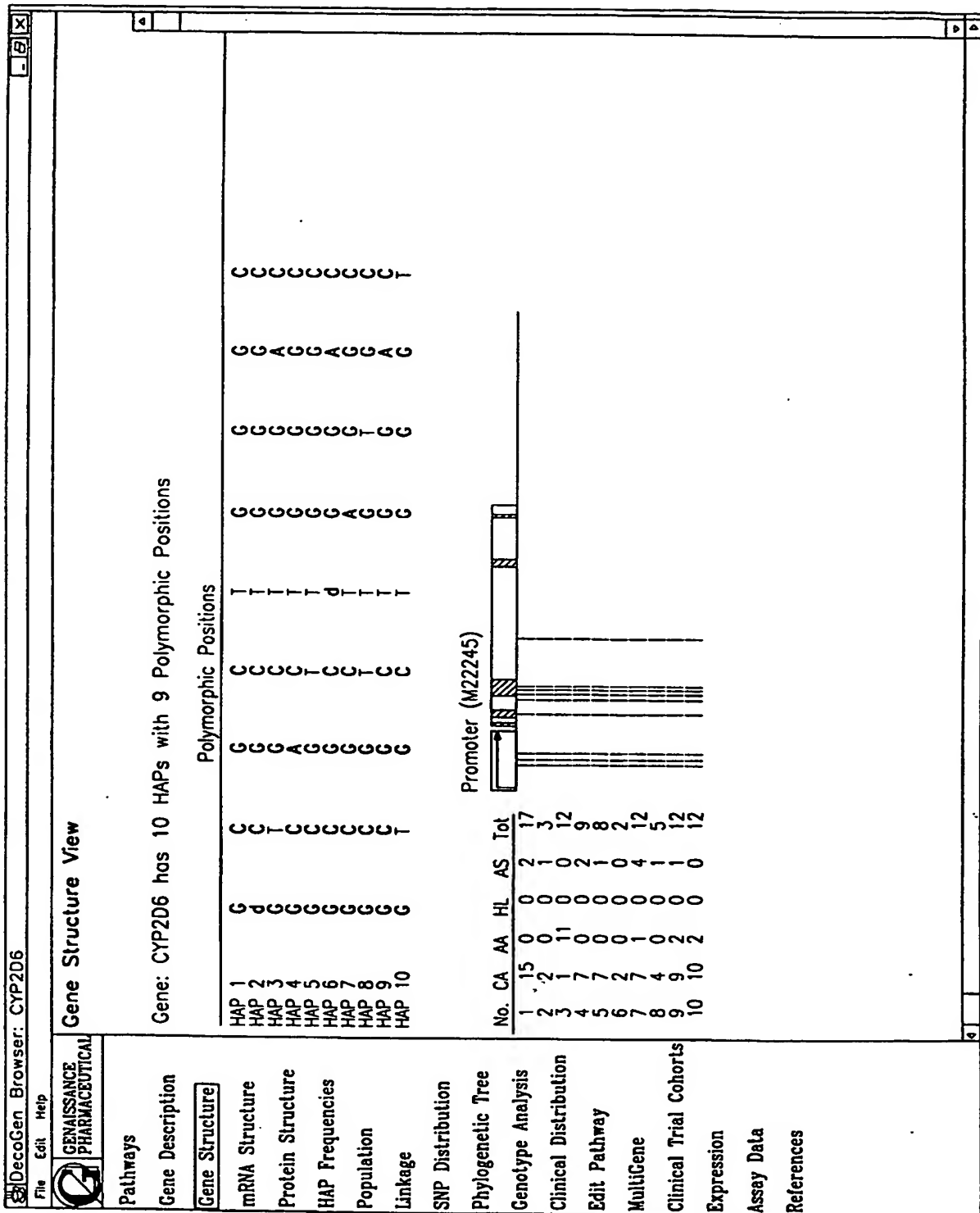
References

Gene Description View

Name	CYP2D6
Definition	Human cytochrome P450 11D6 (CYP2D6) gene
Function	Metabolic enzyme
Organism	Homo Sapiens
Length	9432
No Features	13
Population Size	46
No. Haplotypes	10
Nucleotide Polymorphism (heta)	5.6E-4 +/- 3.1E-4
Nucleotide Diversity (pi)	2.8E-4 +/- 1.8E-4

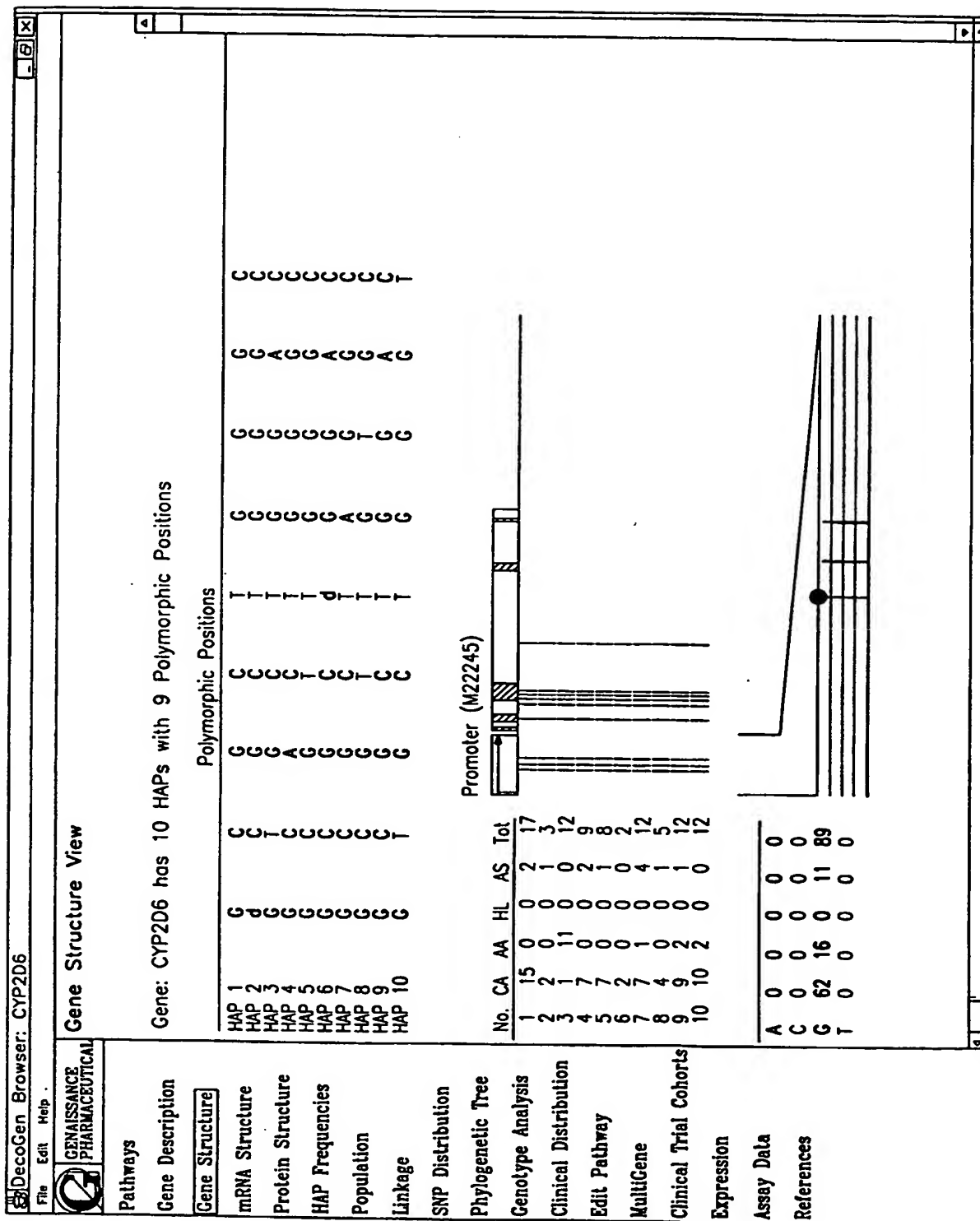
5/62

FIG. 4a



6/62

FIG. 4b



7/62

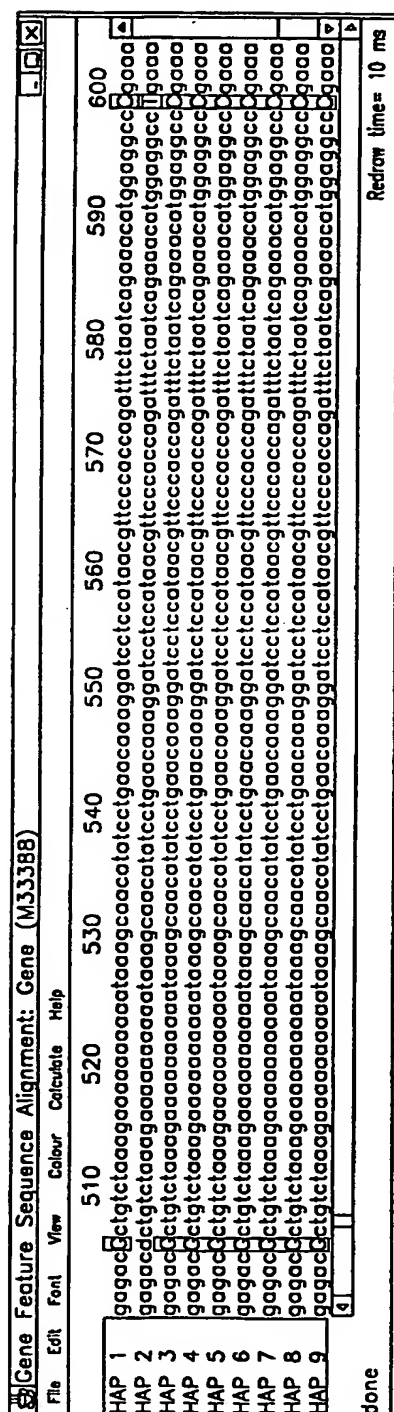
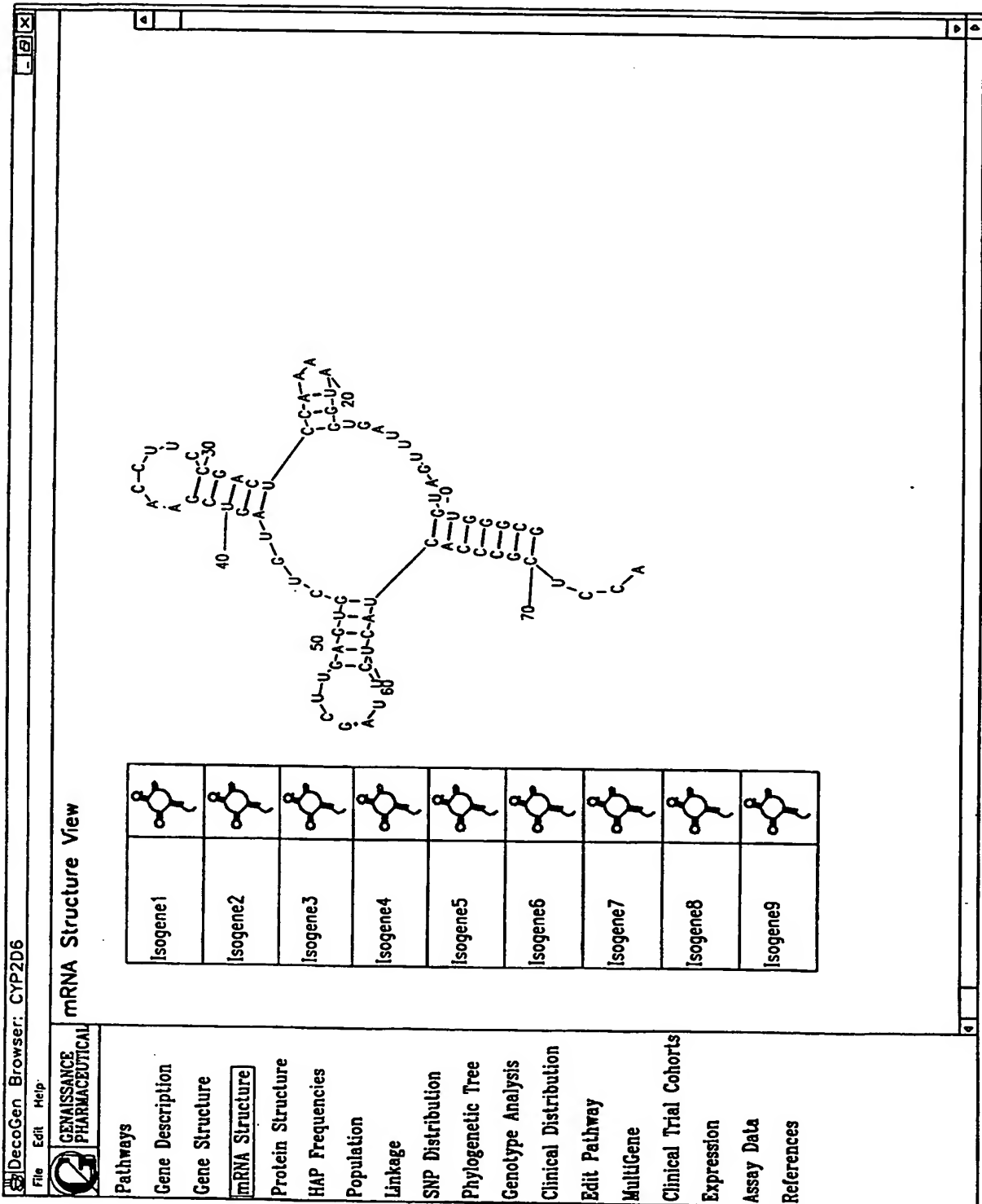


FIG. 5

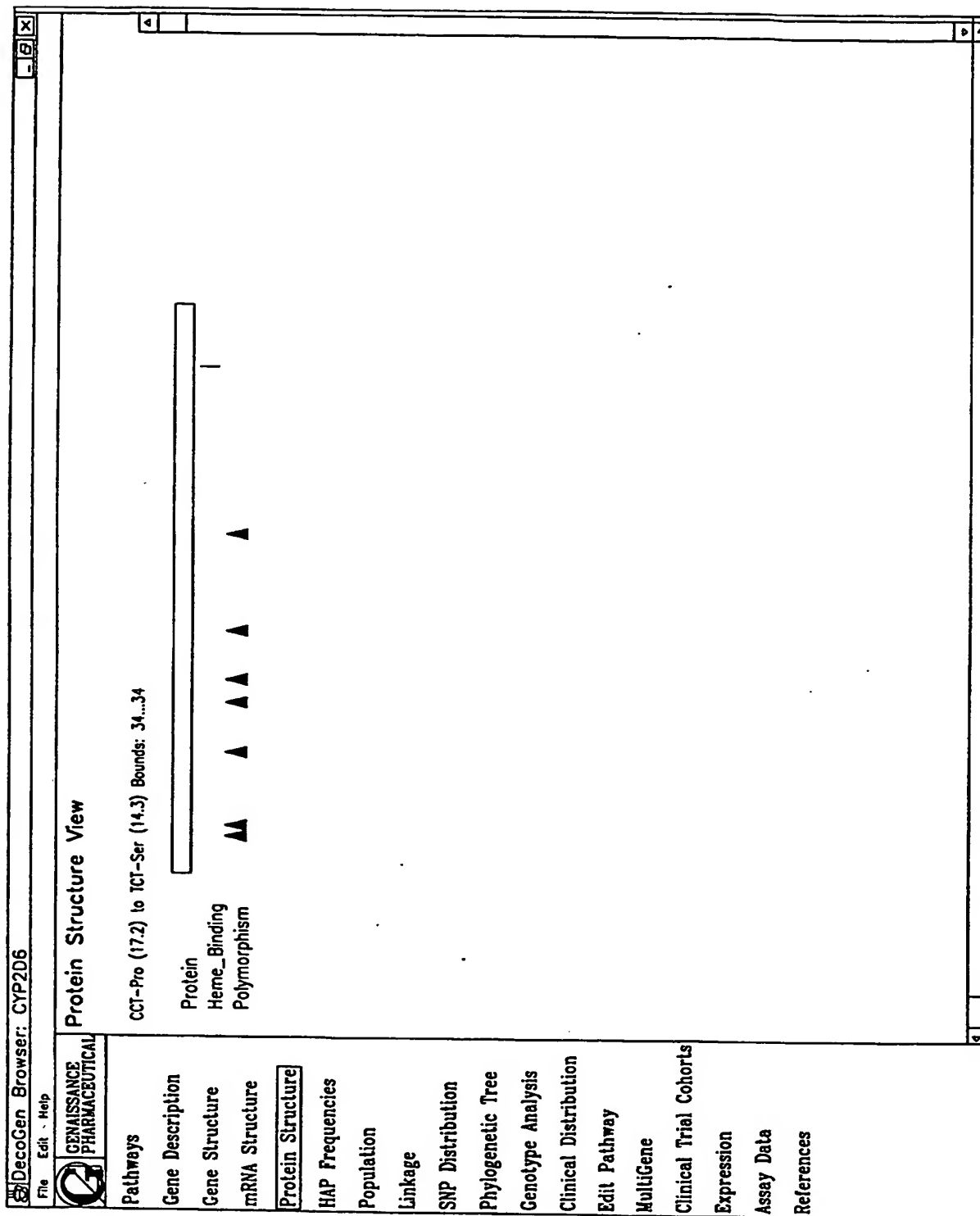
8/62

FIG. 6



9/62

FIG. 7



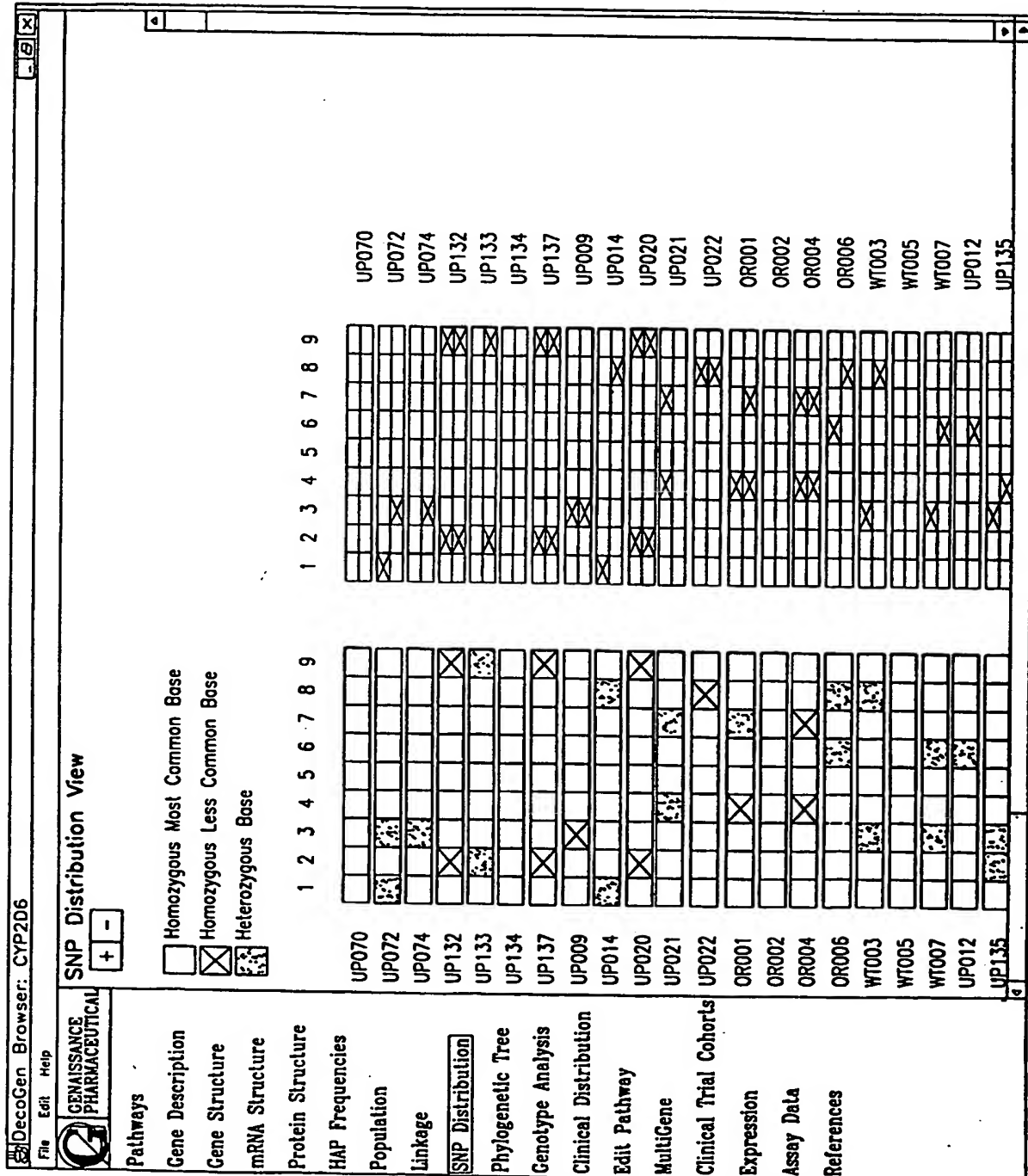
10/62

FIG. 8

DecoGen Browser: CYP2D6									
File Edit Help									
GEMSAANCE PHARMACEUTICAL									
Population View									
Pathways	PID	Ethnicity	Age	Gender	HAP 1	HAP 2	Test		
Gene Description	UP070	CA	99	F	GGCTGGGC	GGCTGGGC	0.1		
Gene Structure	UP072	CA	99	F	GGCTGGGC	GGCTGGGC	0.2		
mRNA Structure	UP074	CA	99	F	GGCTGGGC	GGCTGGGC	0.2		
Protein Structure	UP132	CA	99	M	GGCTGGGC	GGCTGGGC	0.3		
HAP Frequencies	UP133	CA	99	M	GGCTGGGC	GGCTGGGC	0.2		
Population	UP134	CA	99	F	GGCTGGGC	GGCTGGGC	0.1		
Linkage	UP137	CA	99	M	GGCTGGGC	GGCTGGGC	0.1		
SNP Distribution	UP009	CA	99	F	GGCTGGGC	GGCTGGGC	0.1		
Phylogenetic Tree	UP014	CA	99	F	GGCTGGGC	GGCTGGGC	0.3		
Genotype Analysis	UP020	CA	99	F	GGCTGGGC	GGCTGGGC	0.2		
Clinical Distribution	UP021	CA	99	M	GGCTGGGC	GGCTGGGC	0.4		
Edit Pathway	UP022	CA	99	M	GGCTGGGC	GGCTGGGC	0.3		
MultiGene	OR001	AS	99	M	GGCTGGGC	GGCTGGGC	0.2		
Clinical Trial Cohorts	OR002	AS	99	M	GGCTGGGC	GGCTGGGC	0.3		
Expression	OR004	AS	99	F	GGCTGGGC	GGCTGGGC	0.2		
Assay Data	OR006	AS	99	F	GGCTGGGC	GGCTGGGC	0.1		
References	WT003	CA	99	F	GGCTGGGC	GGCTGGGC	0.2		
	WT005	CA	99	M	GGCTGGGC	GGCTGGGC	0.2		
	WT007	CA	99	M	GGCTGGGC	GGCTGGGC	0.4		
	UP012	CA	99	F	GGCTGGGC	GGCTGGGC	0.1		
	UP135	CA	99	M	GGCTGGGC	GGCTGGGC	0.2		

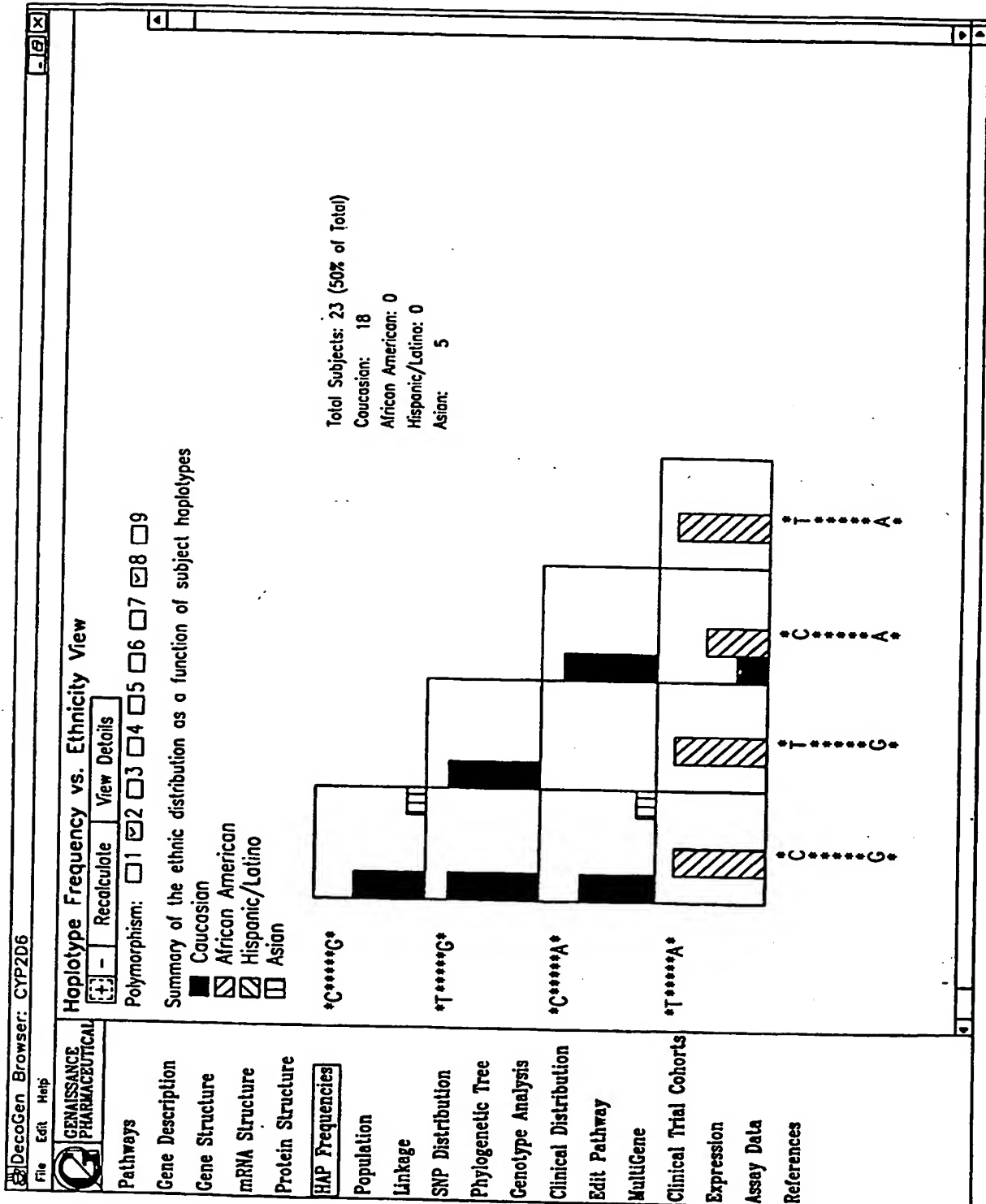
11 / 62

৯৬



12 / 62

FIG. 10



13/62

FIG. II

DecoGen Browser: CYP2D6

File Edit Help

GENAISSANCE PHARMACEUTICAL

Haplotype Frequency vs. Ethnicity View

+ - Recalculate View Summary

Polymorphism: ☐1 ☒2 ☐3 ☐4 ☐5 ☐6 ☐7 ☒8 ☐9

Details of the ethnic distribution as a function of subject haplotypes

3 Columns are given for each Ethnogeographic group:
 Total number sampled with HAP pair
 Fraction of the ethnogeographic group with that HAP pair
 Fraction expected under Hardy-Weinberg equilibrium for that HAP pair

HAP 1	HAP 2	N	%Pop.	Caucasian	African American	Hispanic/Latino	As
*C*****G*	*C*****G*	23	50%	18.56.3%	0.0%	0.0%	5
*T*****G*	*C*****G*	2	4%	2.6.3%	0.0%	0.0%	0
*T*****G*	*T*****G*	4	8%	4.12.5%	0.0%	0.0%	0
*C*****A*	*C*****G*	5	10%	4.12.5%	0.0%	0.0%	1
*C*****A*	*C*****A*	3	6%	3.9.4%	0.0%	0.0%	0
*T*****A*	*C*****G*	1	2%	0.0%	1.12.5%	0.0%	0
*T*****A*	*T*****G*	2	4%	0.0%	2.25.0%	0.0%	0
*T*****A*	*C*****A*	3	6%	1.3.1%	2.25.0%	0.0%	0
*T*****A*	*T*****A*	3	6%	0.0%	3.37.5%	0.0%	0

Pathways

Gene Description

Gene Structure

mRNA Structure

Protein Structure

HAP Frequencies

Population

Linkage

SNP Distribution

Phylogenetic Tree

Genotype Analysis

Clinical Distribution

Edit Pathway

MultiGene

Clinical Trial Cohorts

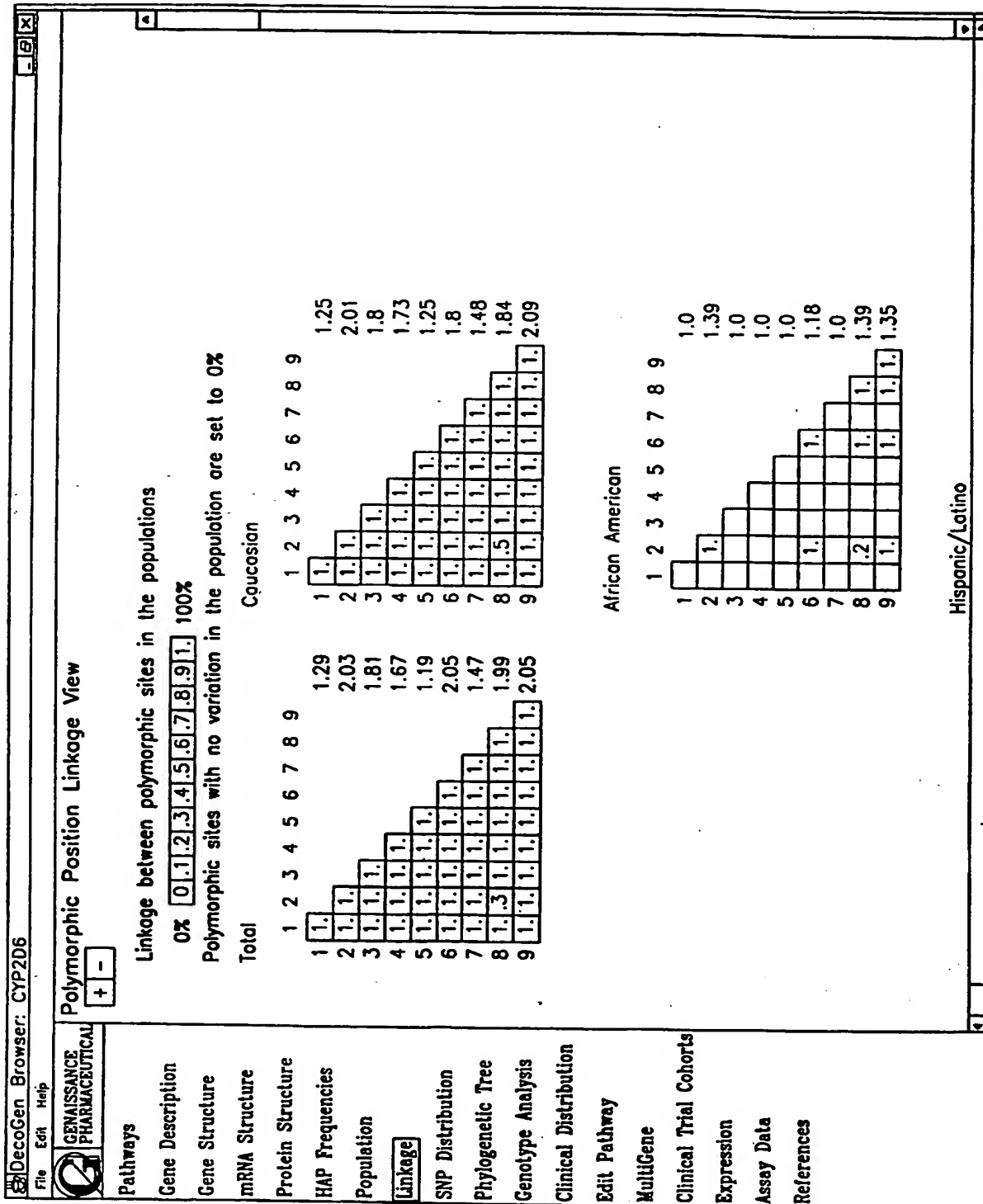
Expression

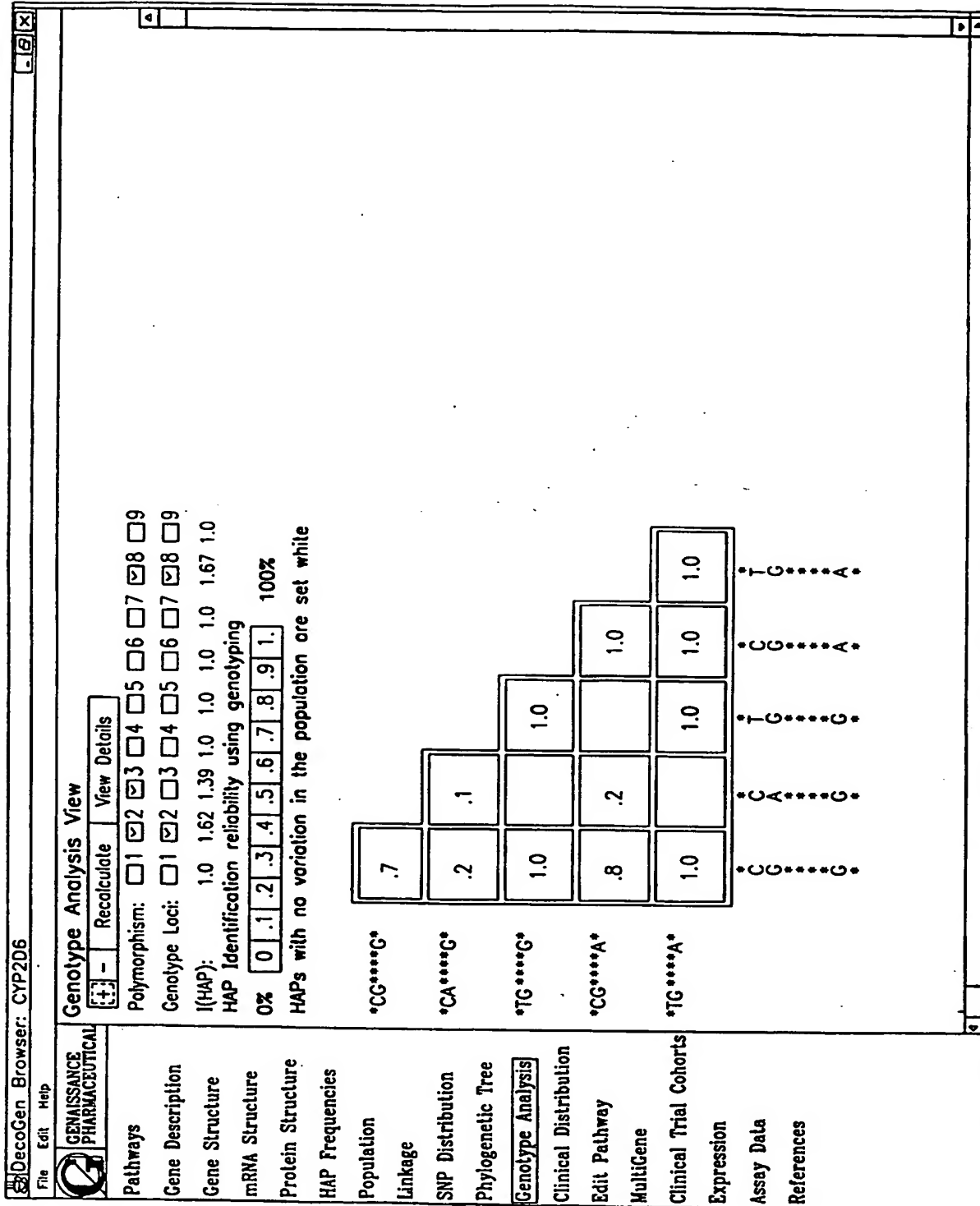
Assay Data

References

14 / 62

FIG. 12





16 / 62

FIG. 14

DecoGen Browser: CYP2D6

File Edit Help

GENAISSANCE PHARMACEUTICAL

Pathways

Gene Description

Gene Structure

mRNA Structure

Protein Structure

HAP Frequencies

Population

Linkage

SNP Distribution

Phylogenetic Tree

Genotype Analysis

Clinical Distribution

Edit Pathway

MultiGene

Clinical Trial Cohorts

Expression

Assay Data

References

Genotype Analysis View

+ - Recalculate View Optimized

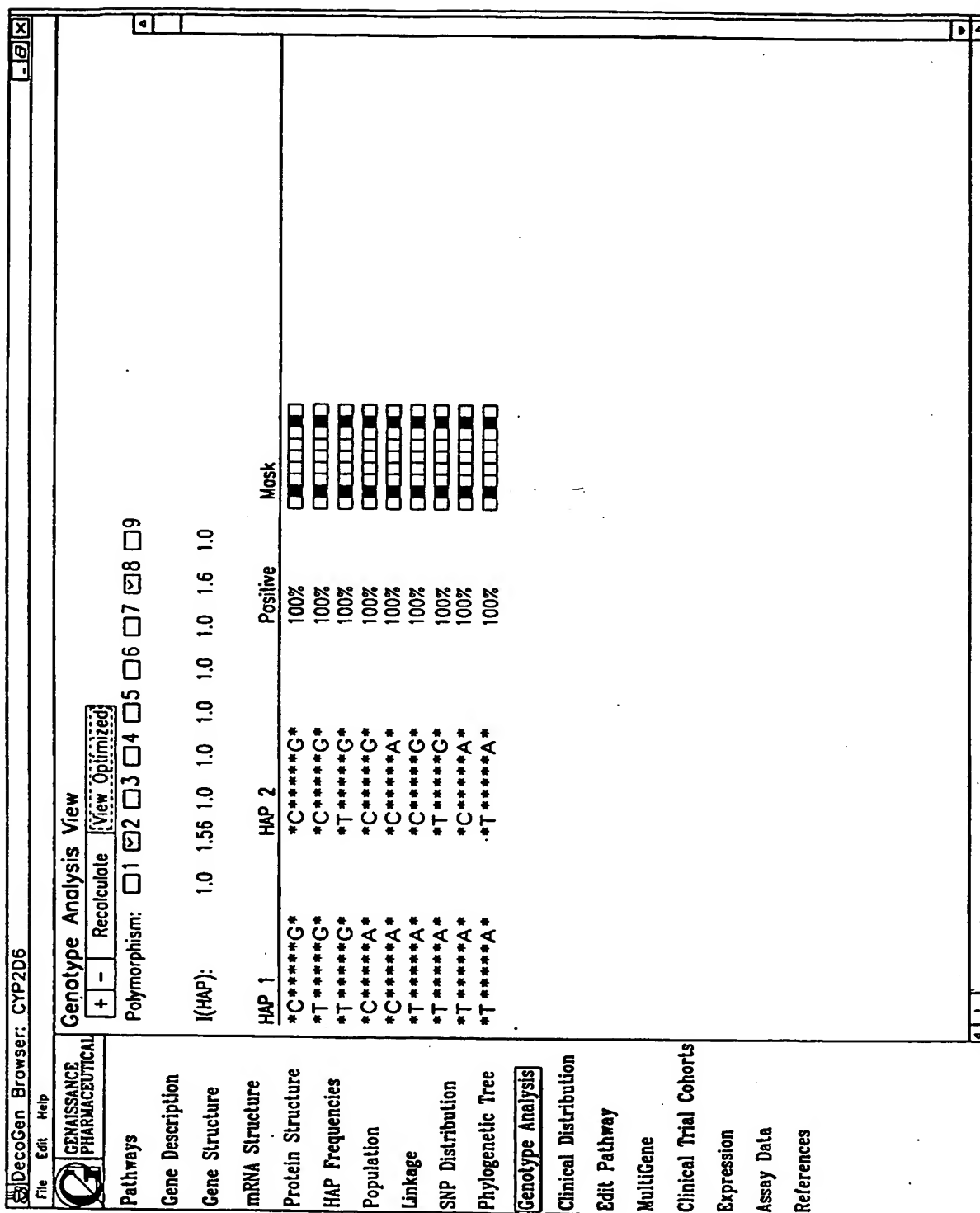
Polymorphism: ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☒ 8 ☐ 9

Genotype Loci: ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☒ 8 ☐ 9

I(HAP): 1.0 1.56 1.0 1.0 1.0 1.0 1.0 1.0 1.6 1.0

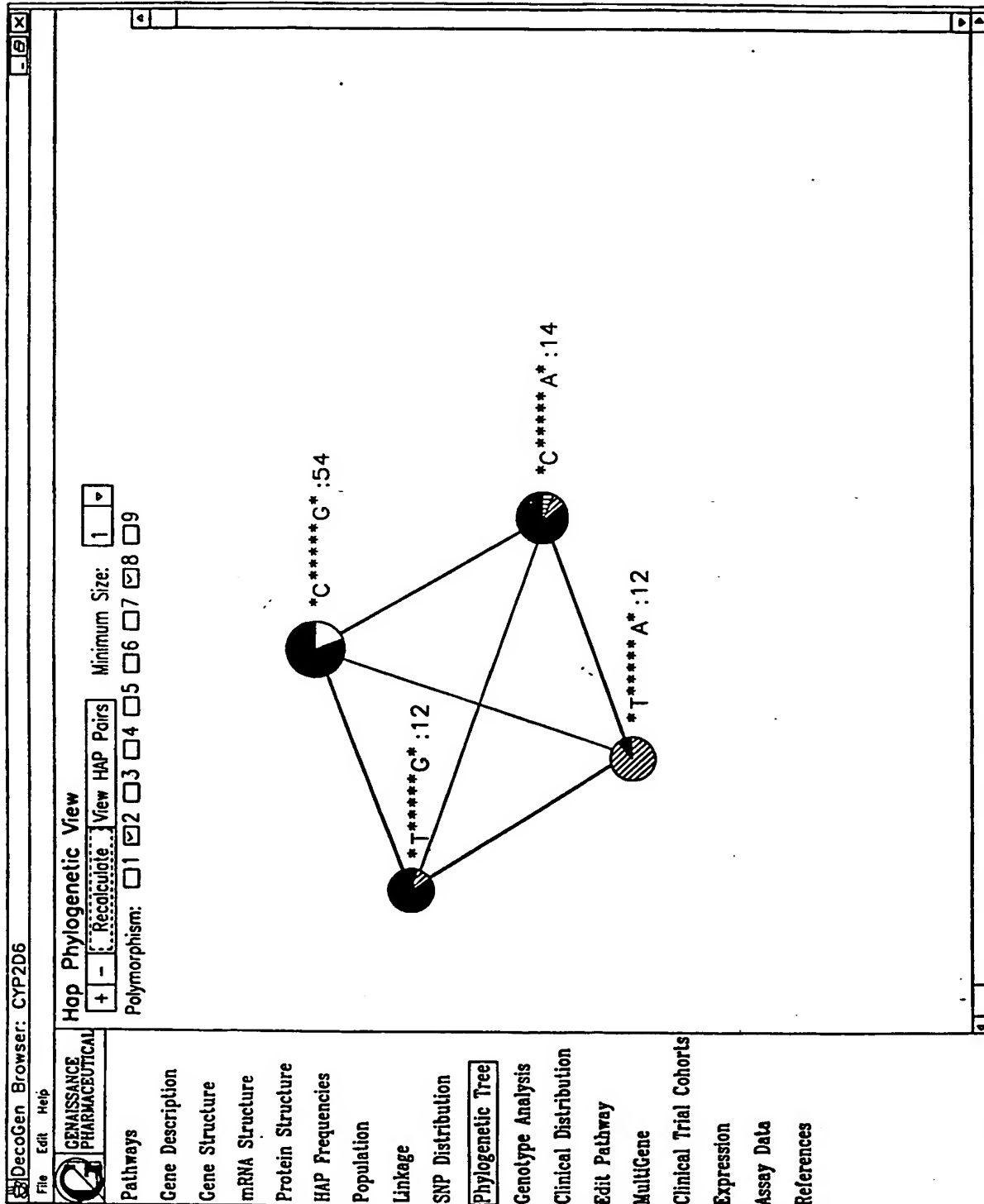
HAP 1	HAP 2	N	%Pop.	Positive
*C*****G*	*C*****G*	23	50%	100%
*T*****G*	*C*****G*	2	4%	100%
*T*****G*	*T*****G*	4	8%	100%
*C*****A*	*C*****G*	5	10%	100%
*C*****A*	*C*****A*	3	6%	100%
*T*****A*	*C*****G*	1	2%	100%
*T*****A*	*T*****G*	2	4%	100%
*T*****A*	*C*****A*	3	6%	100%
*T*****A*	*T*****A*	3	6%	100%

FIG. 15



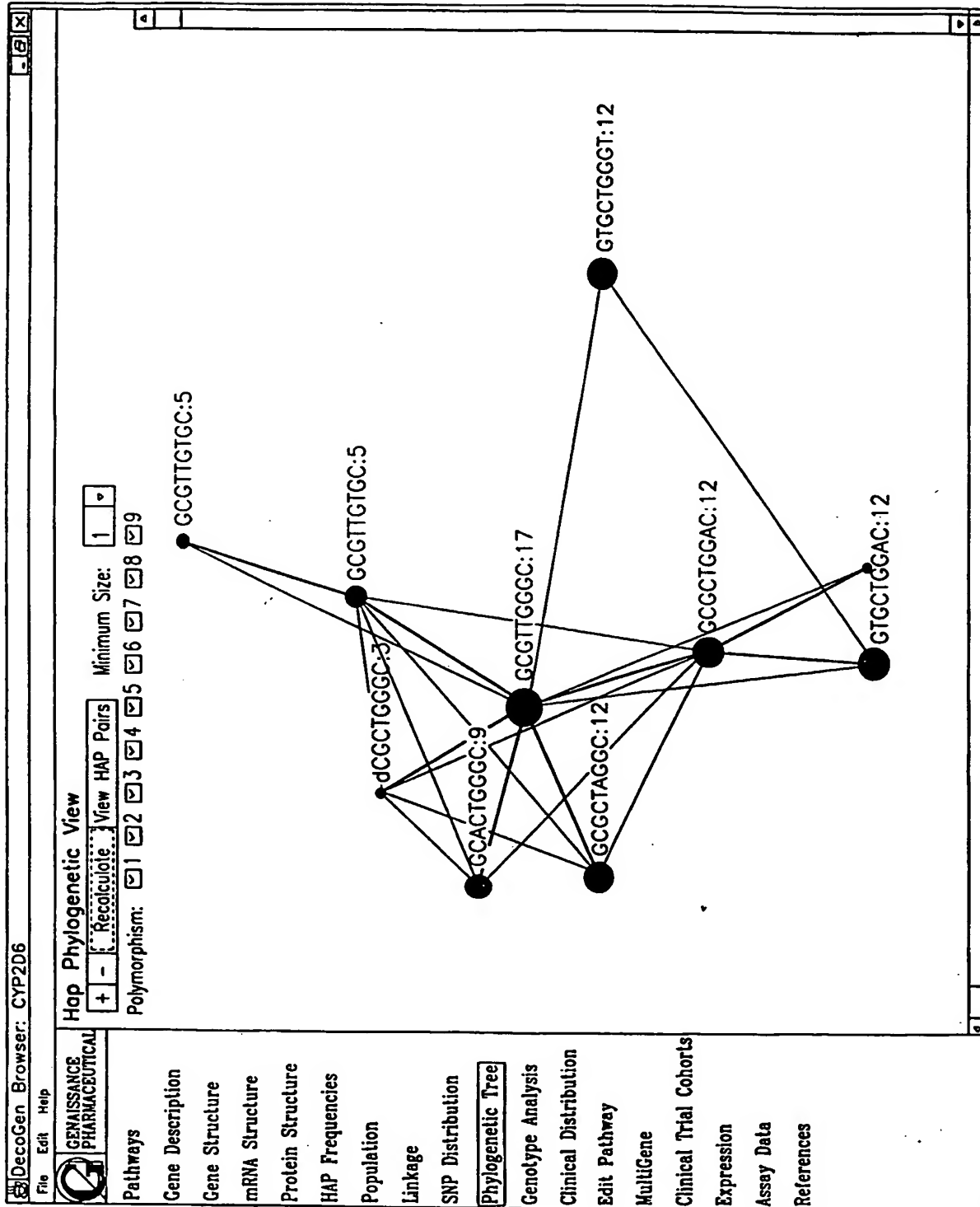
18 / 62

FIG. 16



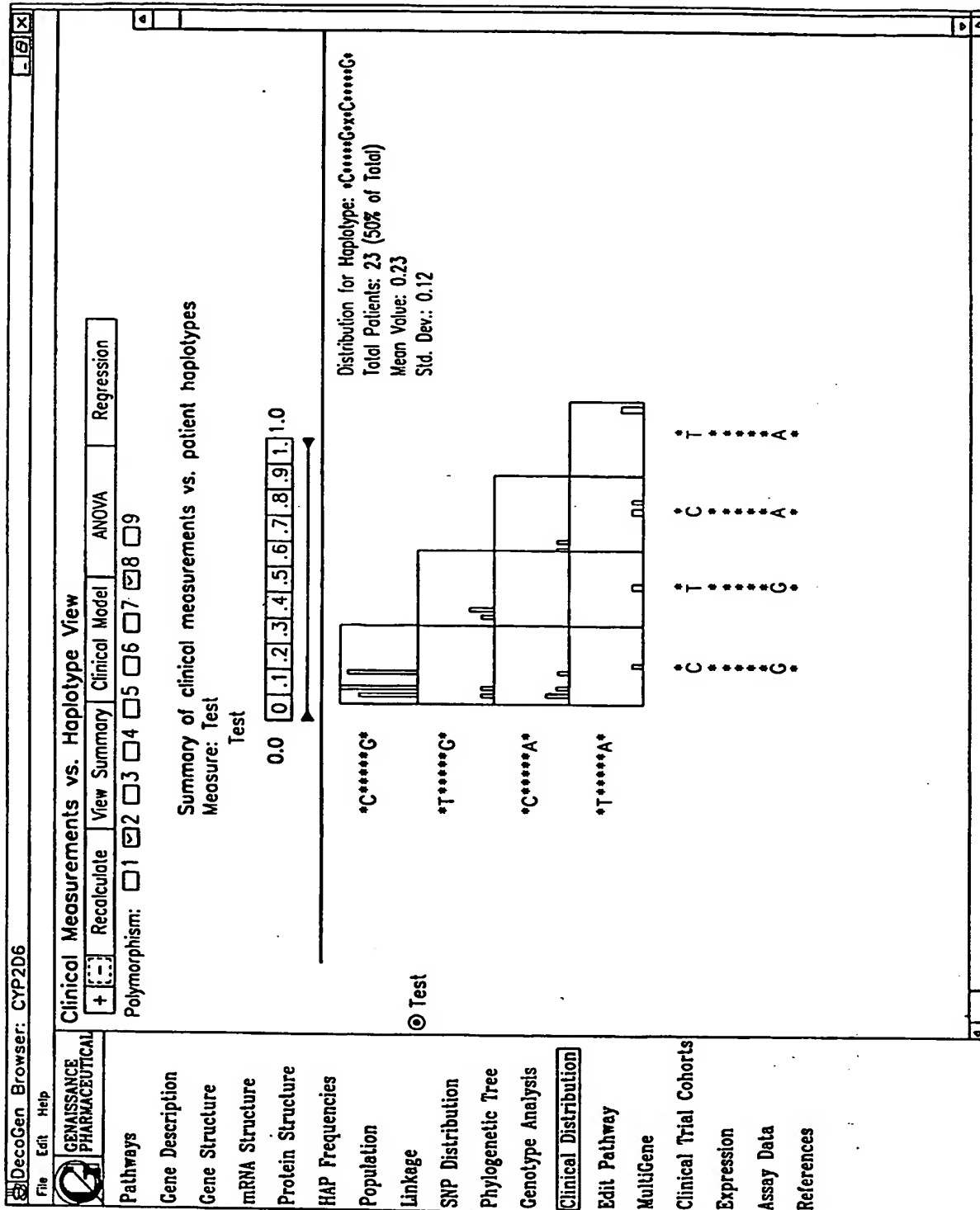
19 / 62

FIG. 17





உ
உ



22 / 62

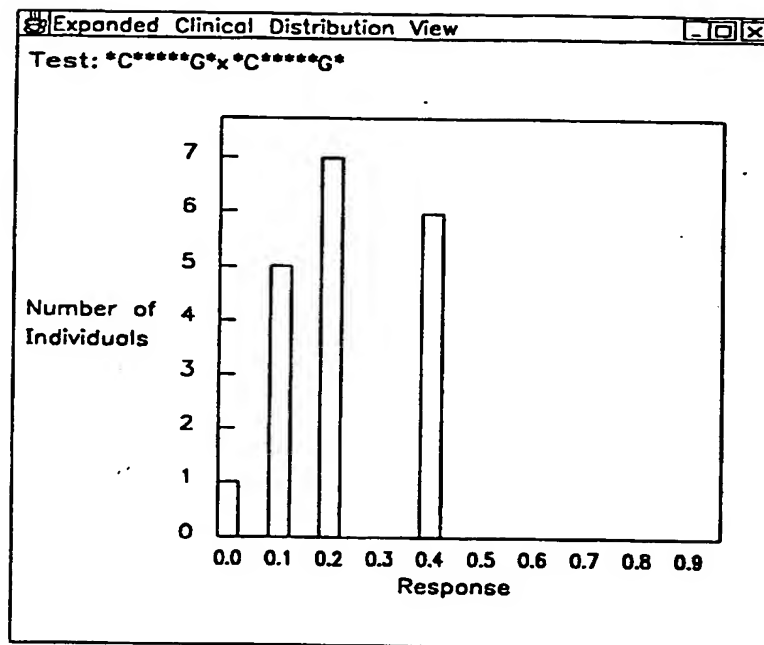
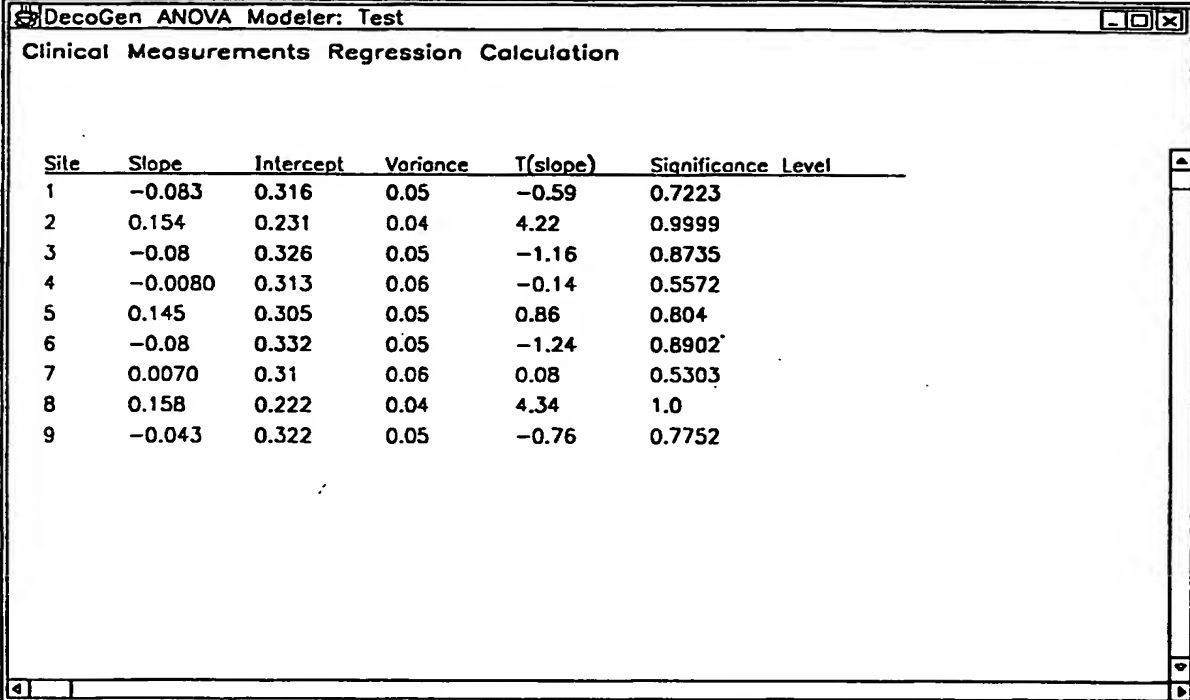


FIG. 20

23 / 6 2



DecoGen ANOVA Modeler: Test

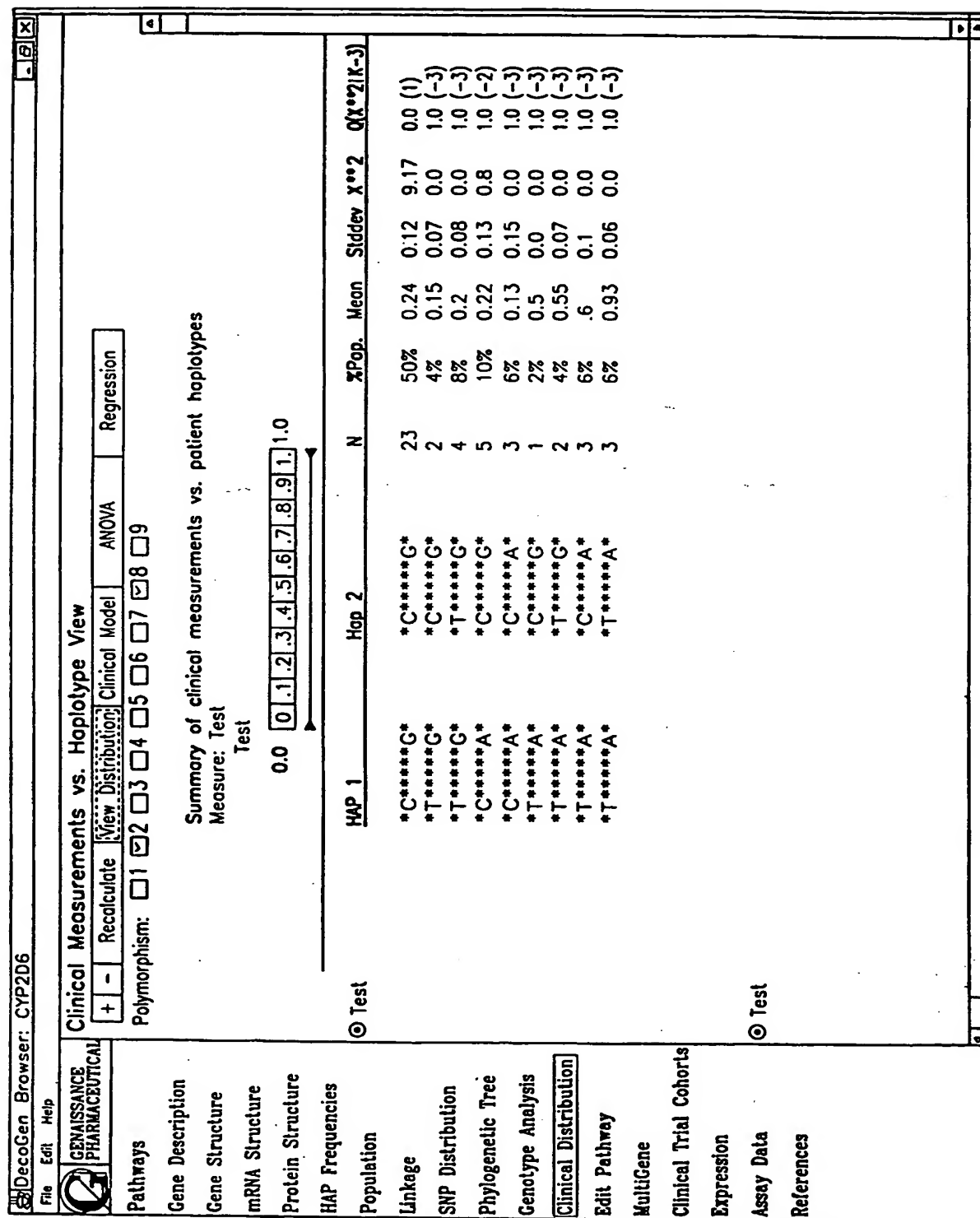
Clinical Measurements Regression Calculation

Site	Slope	Intercept	Variance	T(slope)	Significance Level
1	-0.083	0.316	0.05	-0.59	0.7223
2	0.154	0.231	0.04	4.22	0.9999
3	-0.08	0.326	0.05	-1.16	0.8735
4	-0.0080	0.313	0.06	-0.14	0.5572
5	0.145	0.305	0.05	0.86	0.804
6	-0.08	0.332	0.05	-1.24	0.8902
7	0.0070	0.31	0.06	0.08	0.5303
8	0.158	0.222	0.04	4.34	1.0
9	-0.043	0.322	0.05	-0.76	0.7752

FIG. 21

24 / 62

FIG. 22



25/62

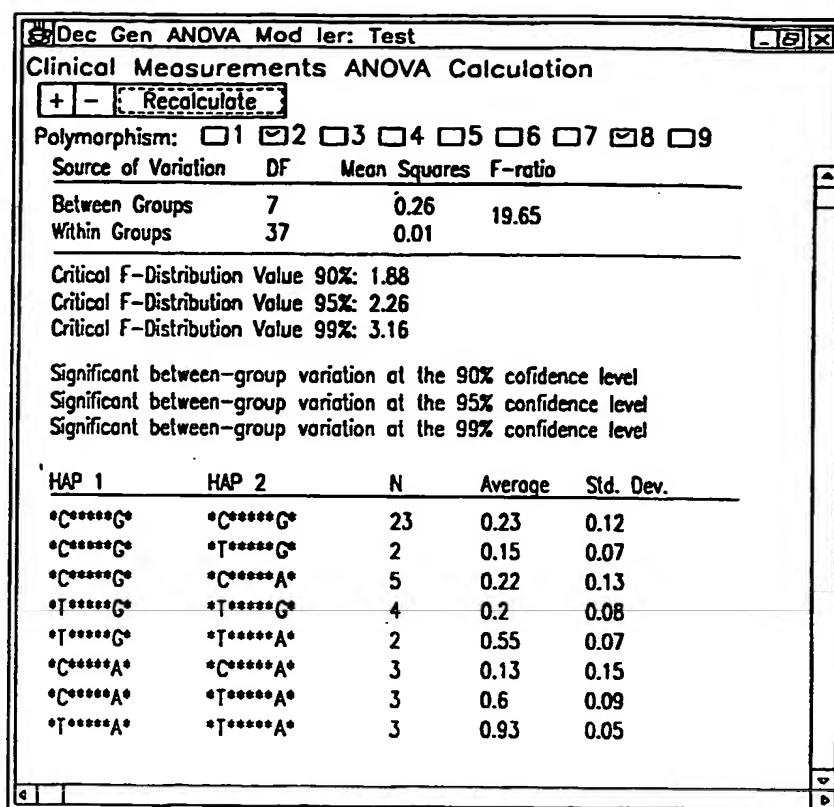


FIG. 23

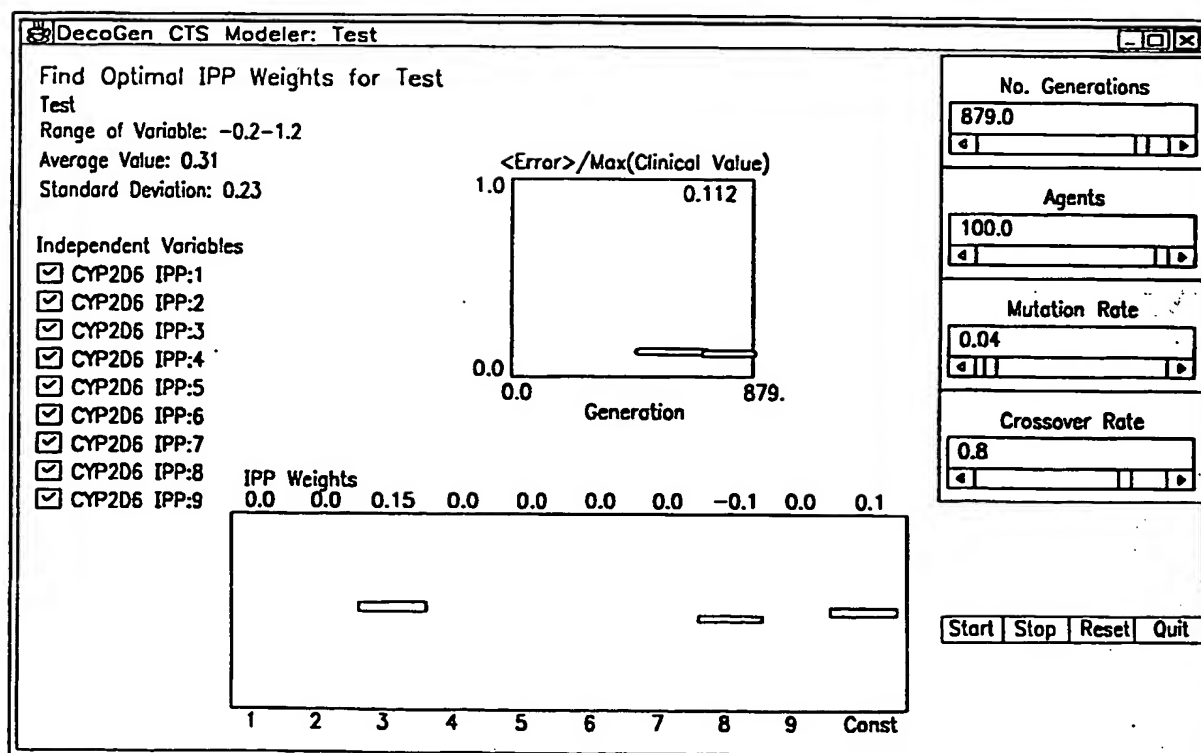


FIG. 24

26 / 62

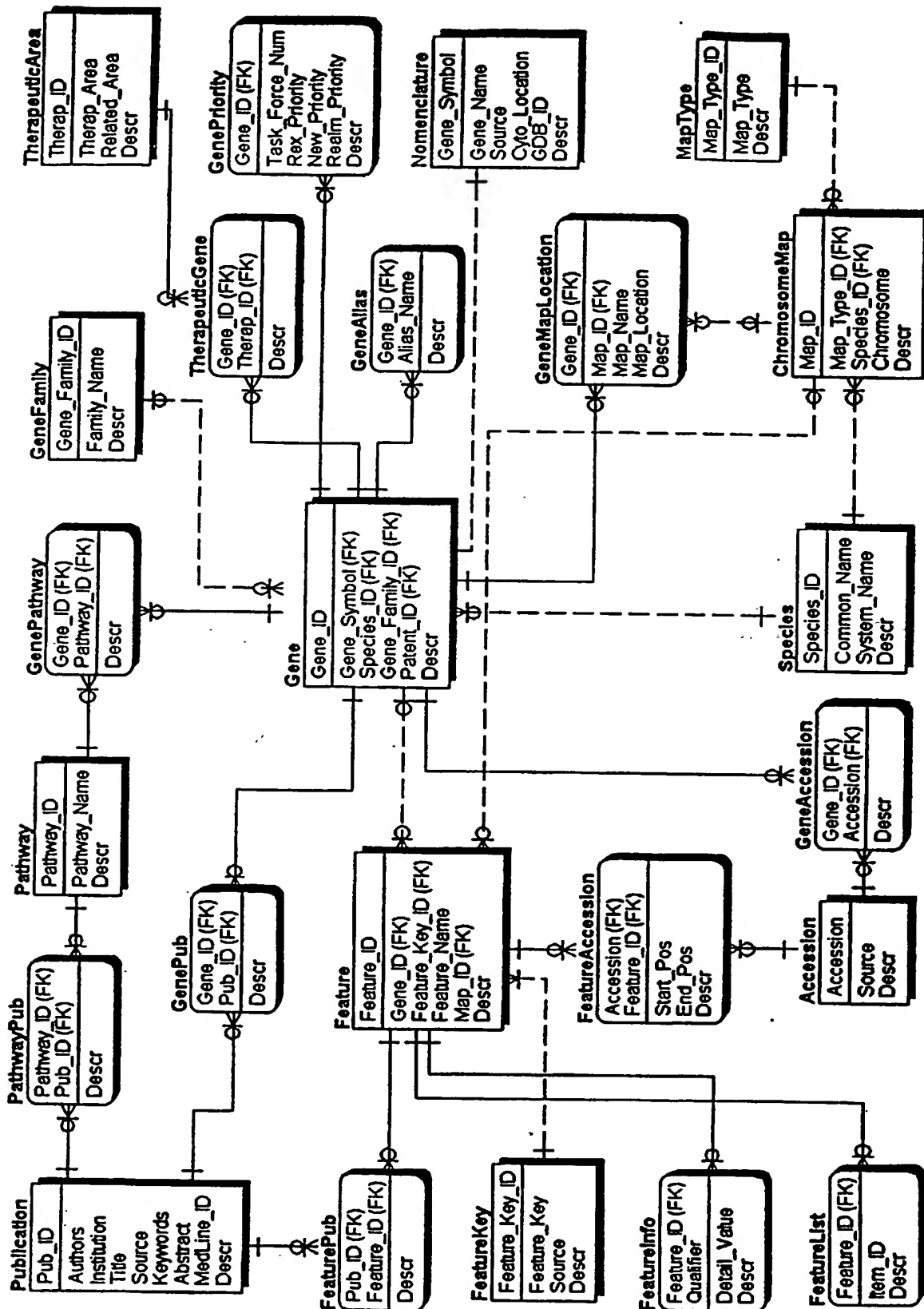


FIG. 25A

27 / 62

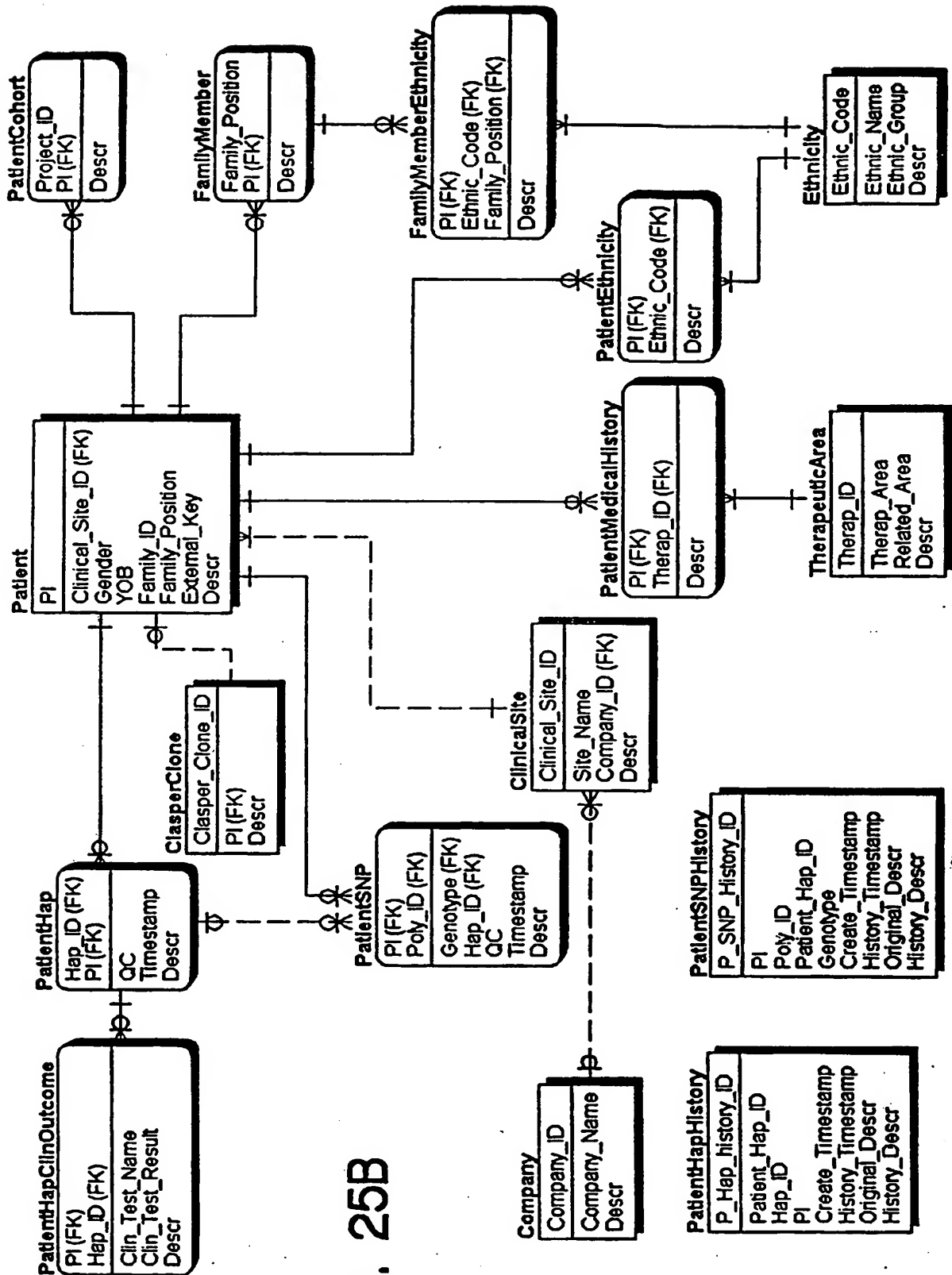
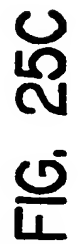


FIG. 25B



29/62

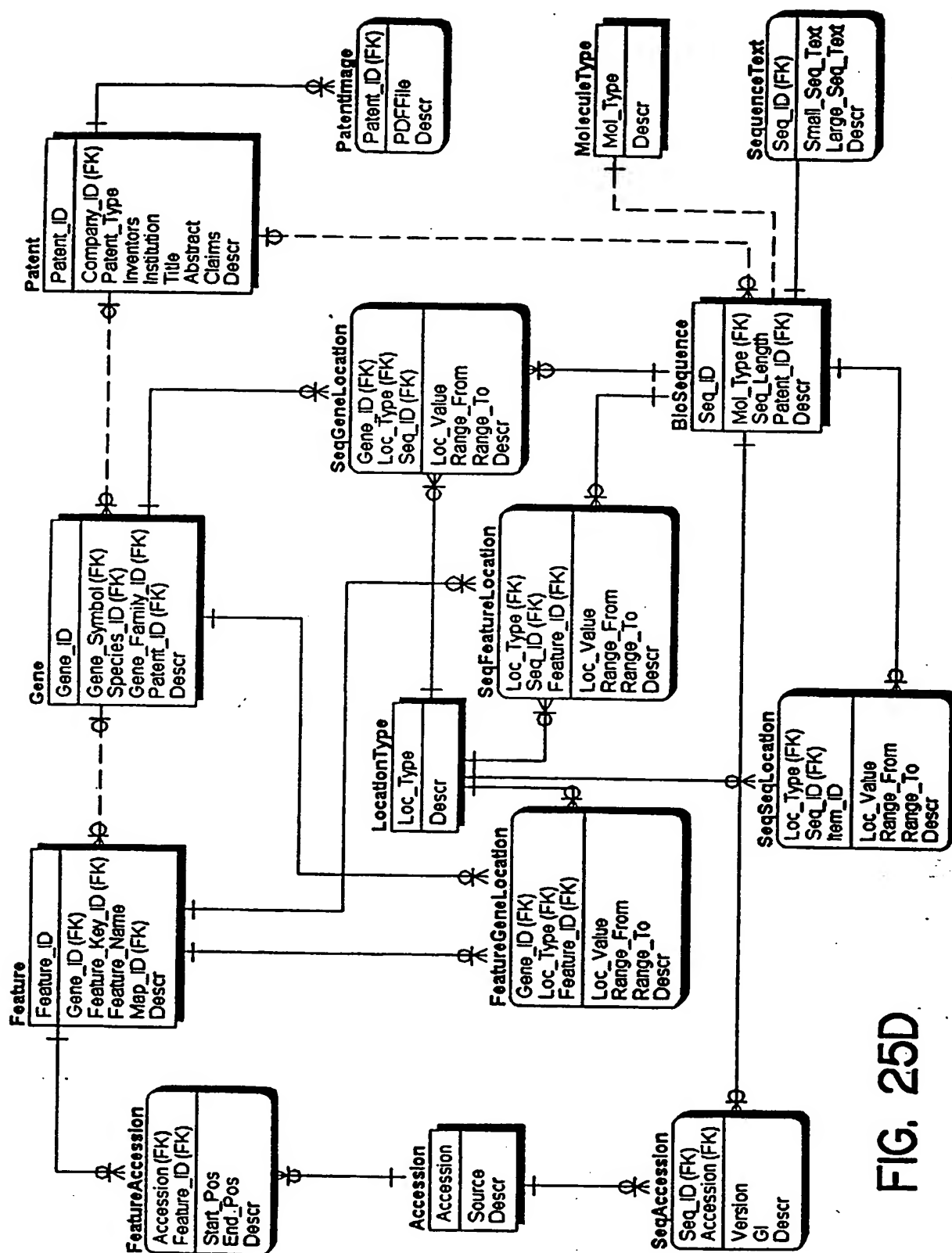


FIG. 25D

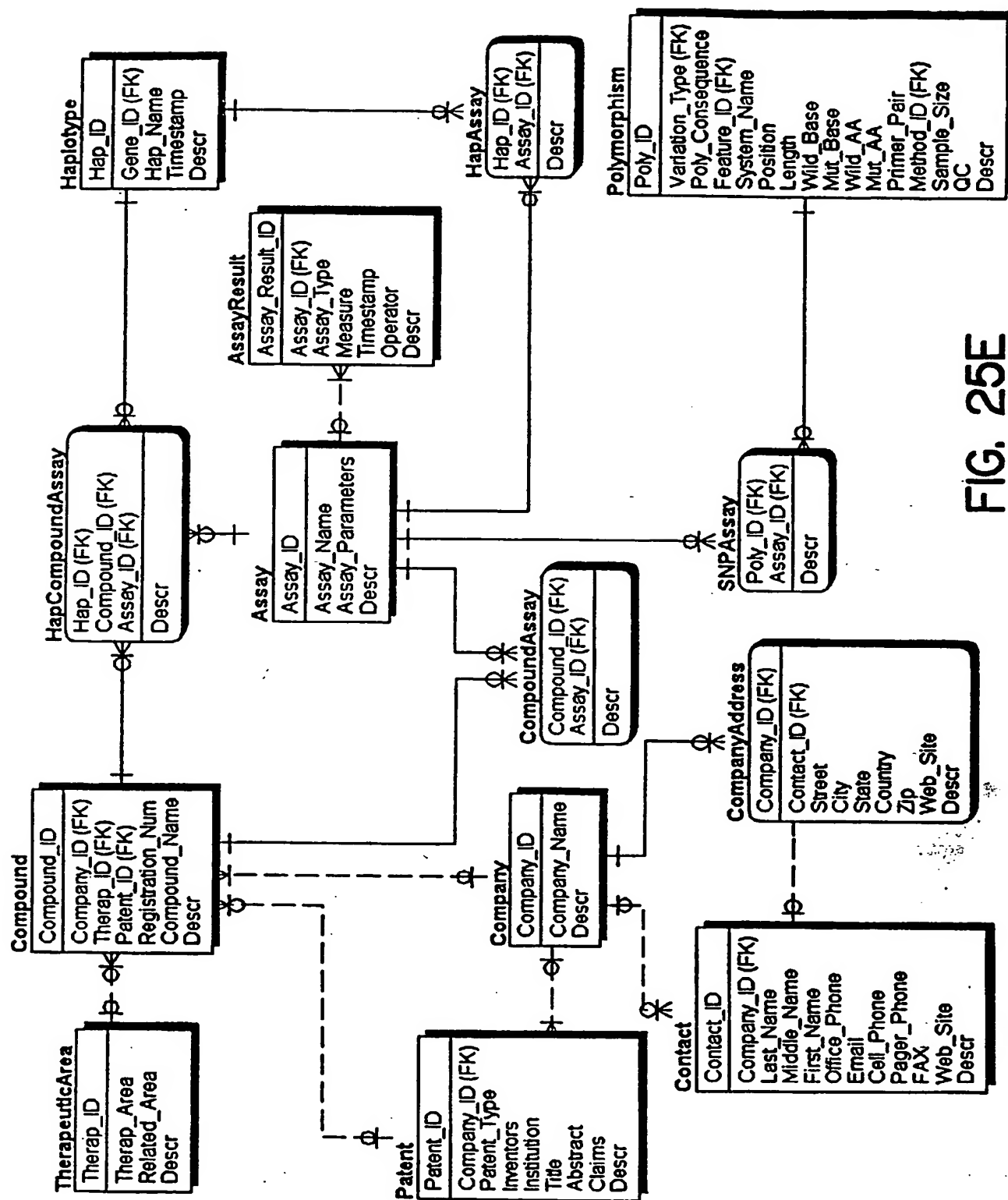
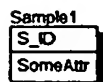
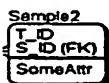


FIG. 25E

31 / 62

Legend of Figures:

Rectangle Boxes: Tables in the database.



Rounded Boxes: Children tables that depend on their parent tables. This dependency requires that a parent record to be in existence before a child record can be created.

- 2: ————* Identifying parent / child relationship. It depicts the not nullable 1-to-0-or-many relationship.
- 4: ————* Non-identifying parent / child relationship. It represents the nullable 0-or-1-to-many relationship.
- 6: ————* Identifying parent / child relationship. It depicts the not nullable 1-to-1-or-many relationship.
- 8: - - - - * Non-identifying parent / child relationship. It represents the not nullable 1-to-1-or-many relationship.
- 10: |——— Non-identifying parent / child relationship. It represents the nullable 0-or-1-to-many relationship.
- 12: ⊕——— Non-identifying parent / child relationship. It represents the nullable 0-or-1-to-exact-1 relationship.
- 14: ⊕———* Non-identifying parent / child relationship. It represents the not nullable 0-or-1-to-many relationship.

FIG. 25F

32 / 62

FIG. 26

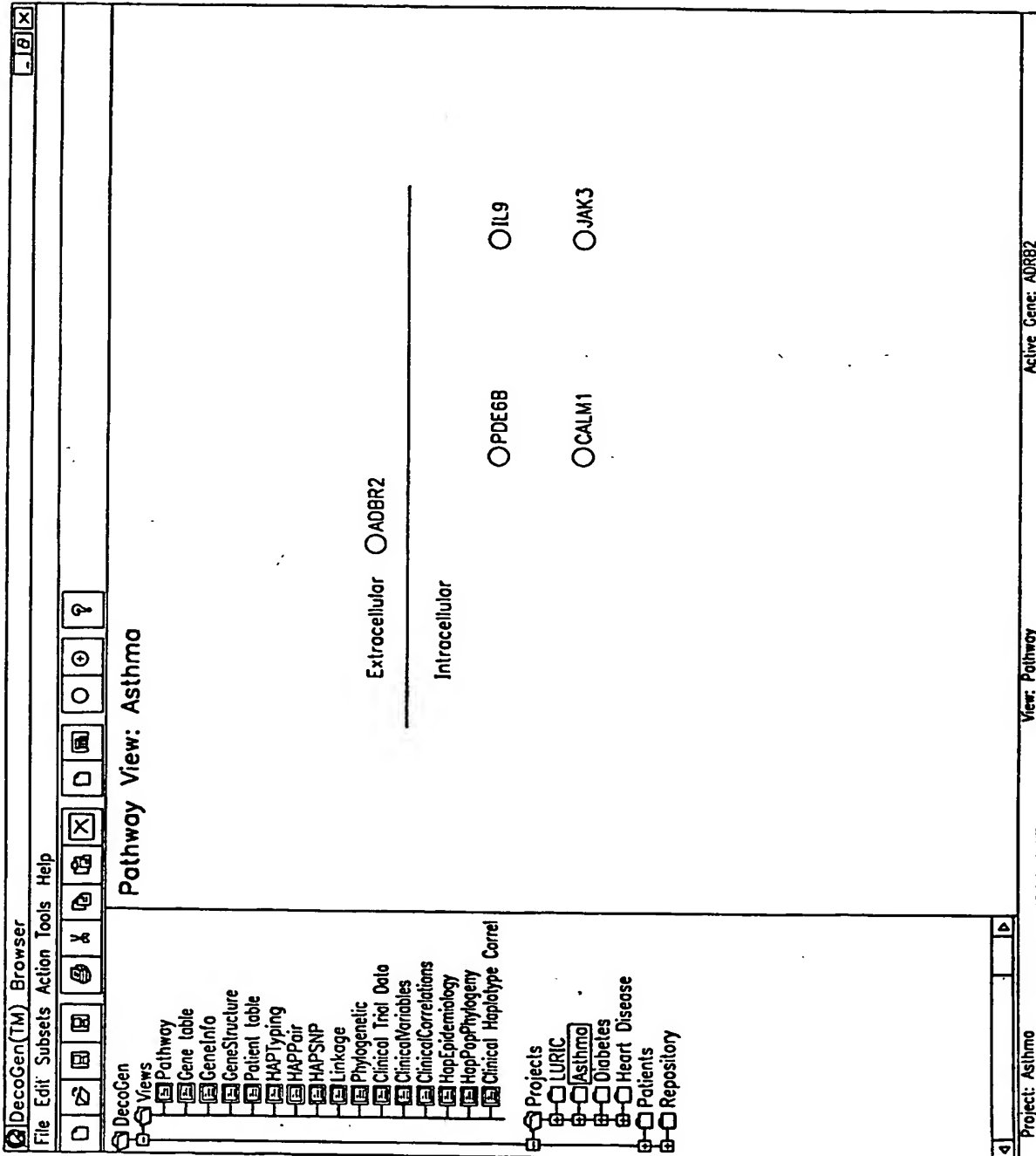


FIG. 27

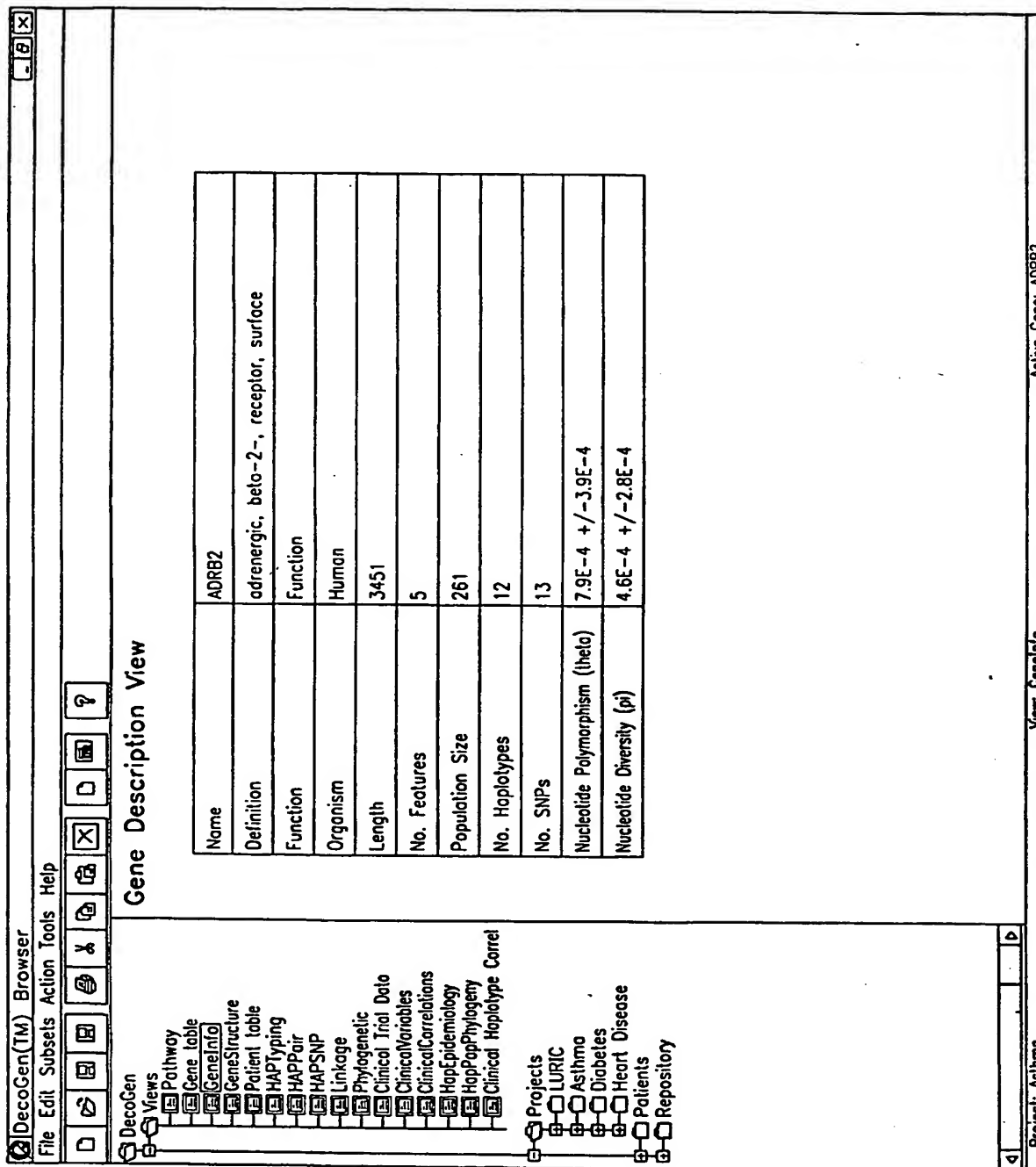


FIG. 28A

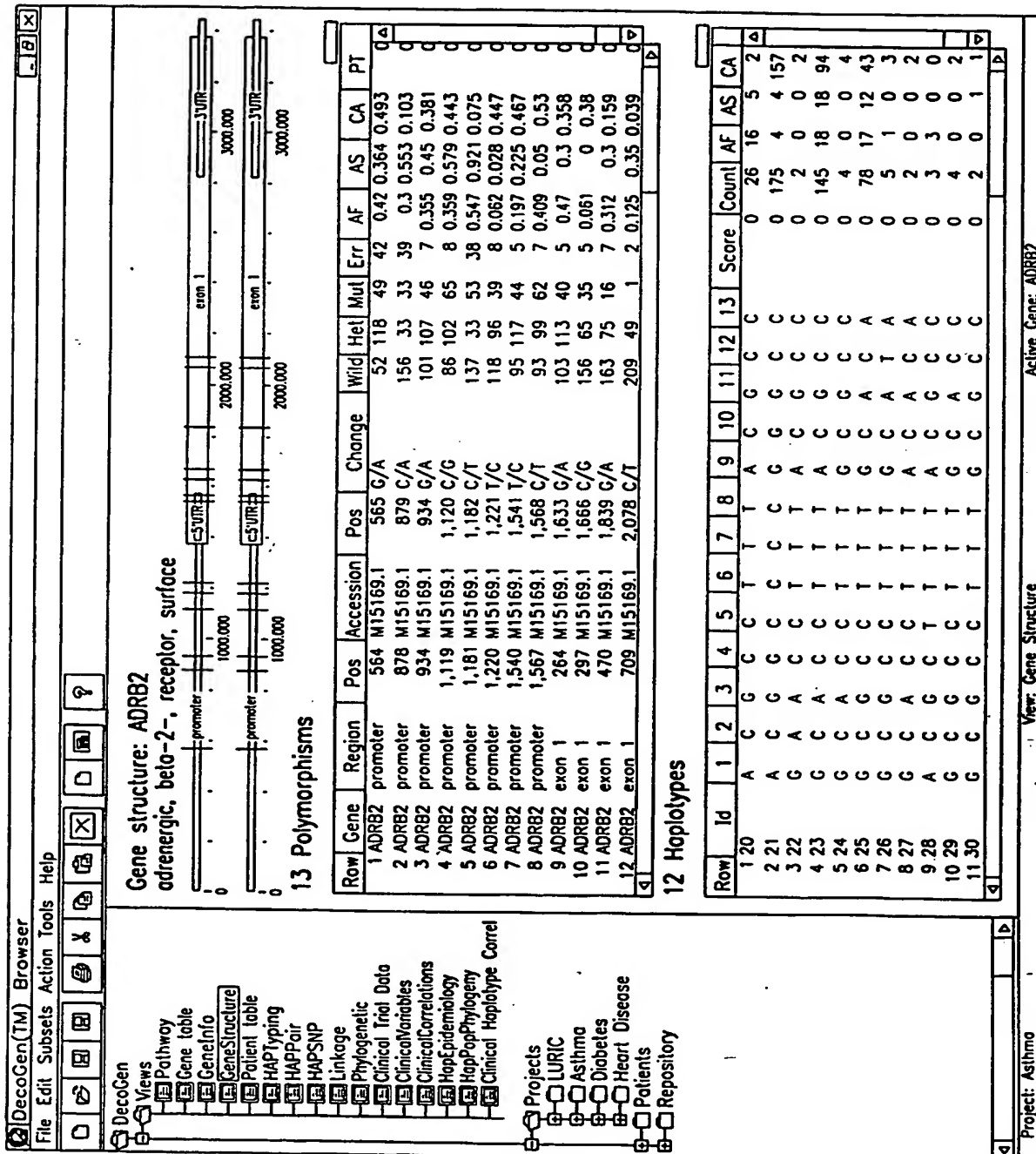


FIG. 28B

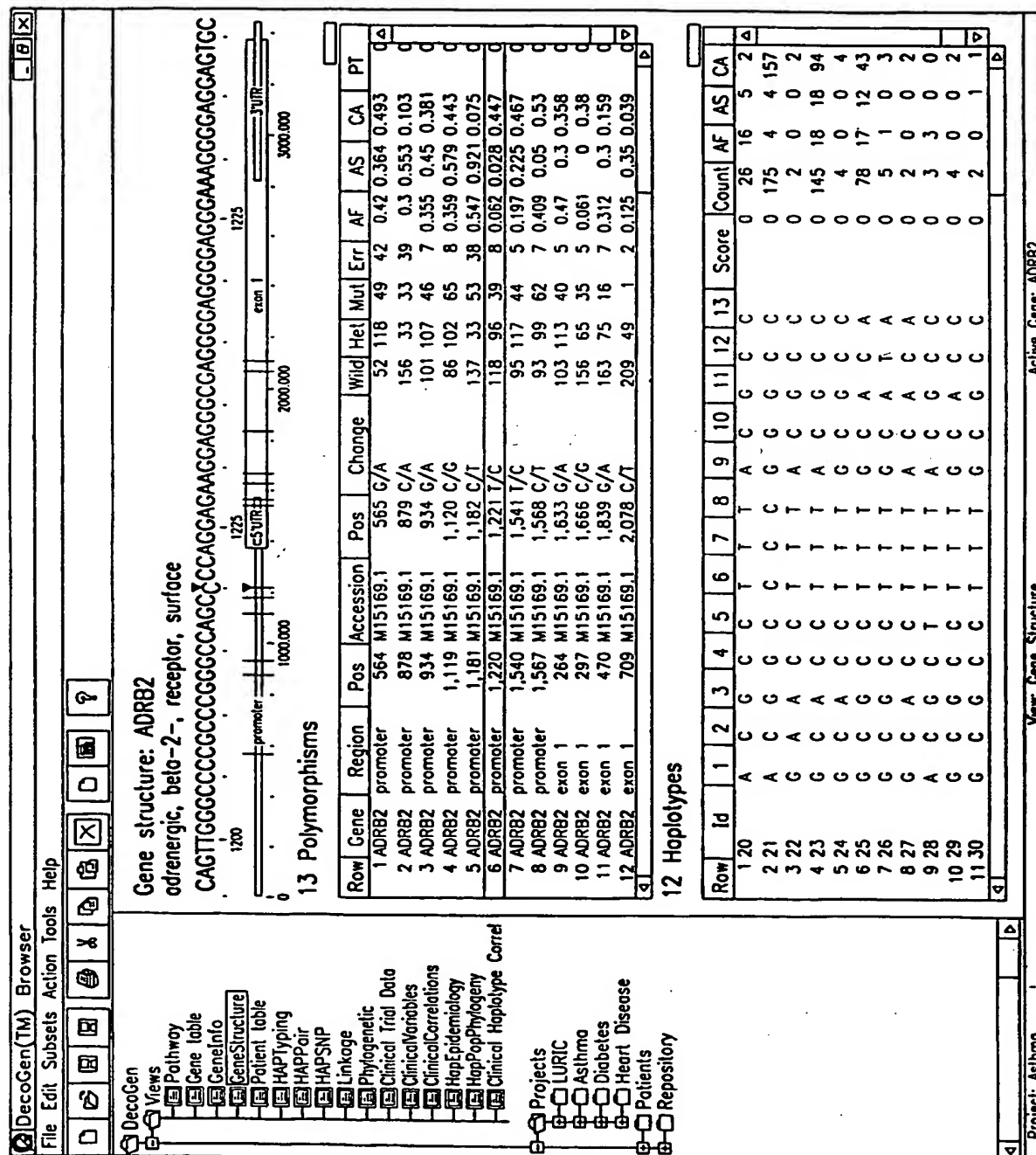
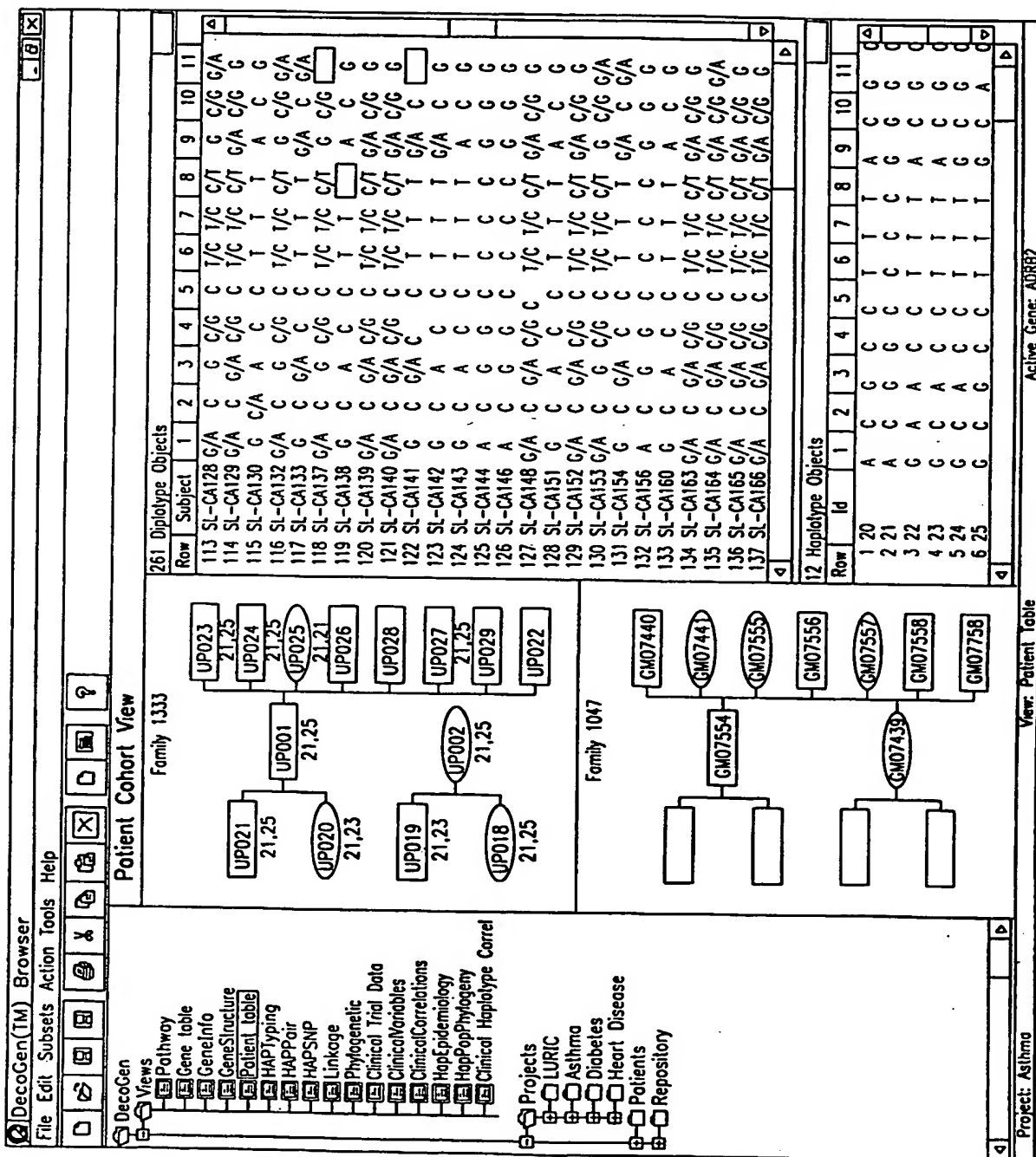


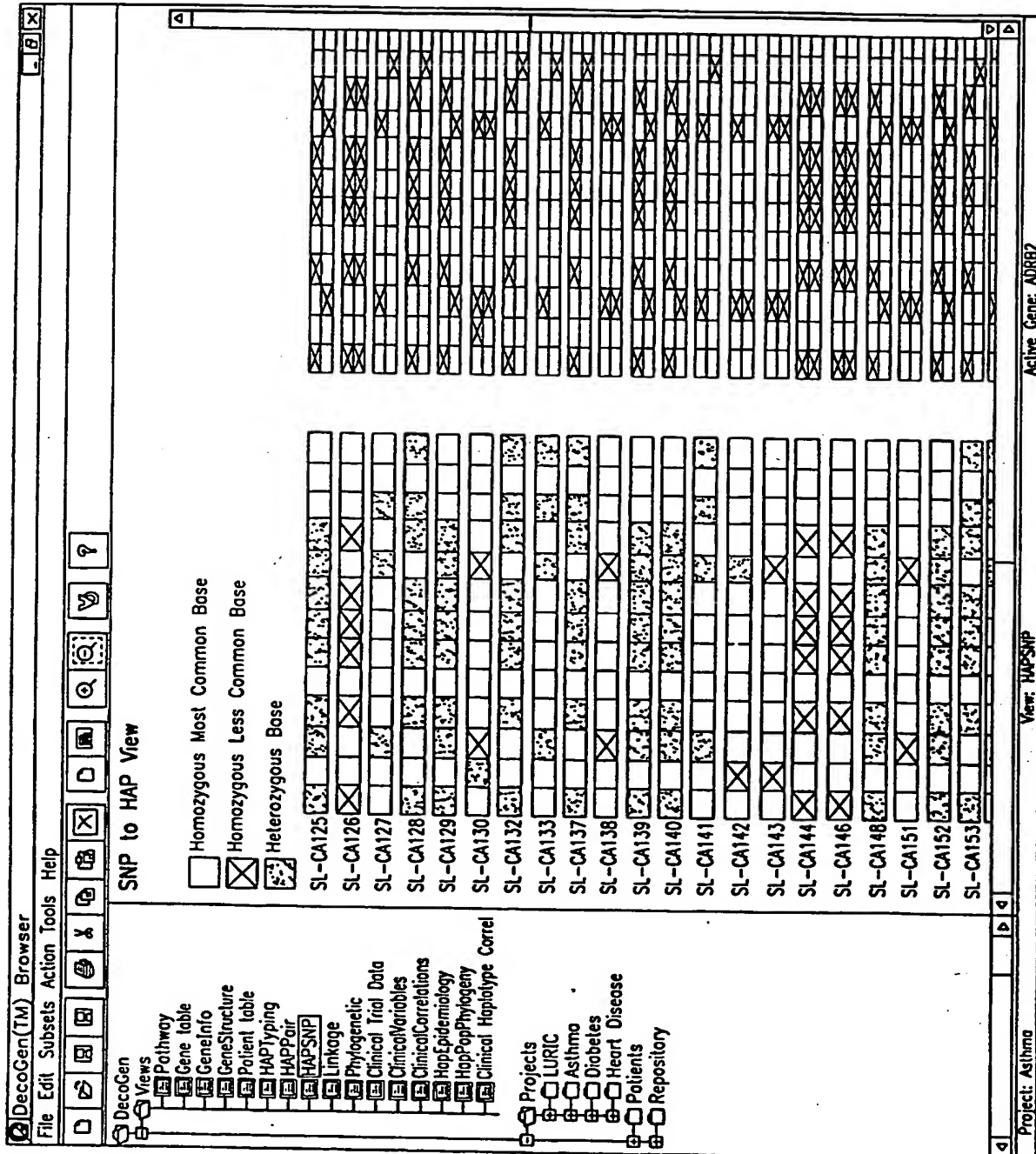
FIG. 29A



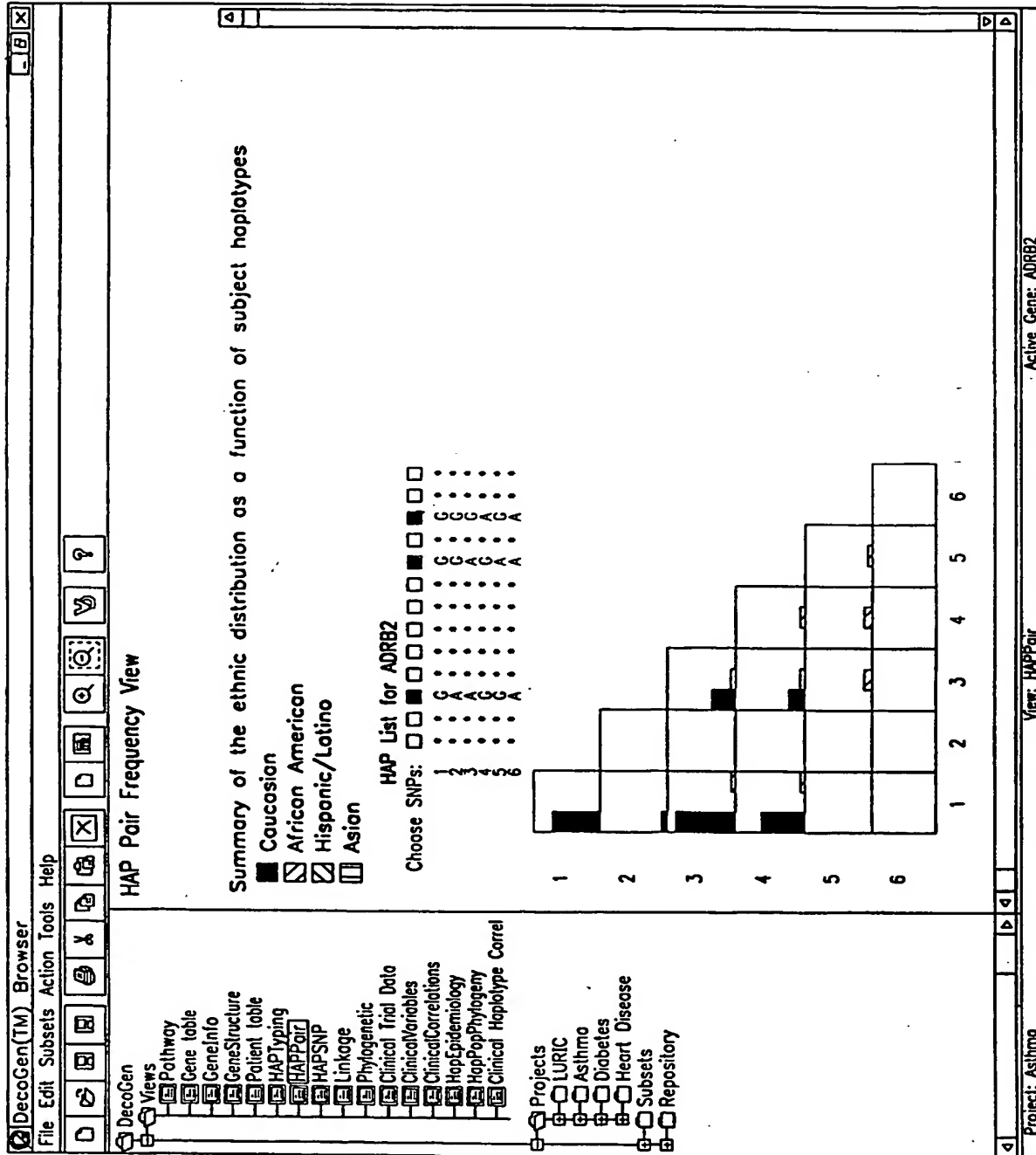
DecoGen(TM) Browser

File Edit Subsets Action Tools Help

FIG. 30

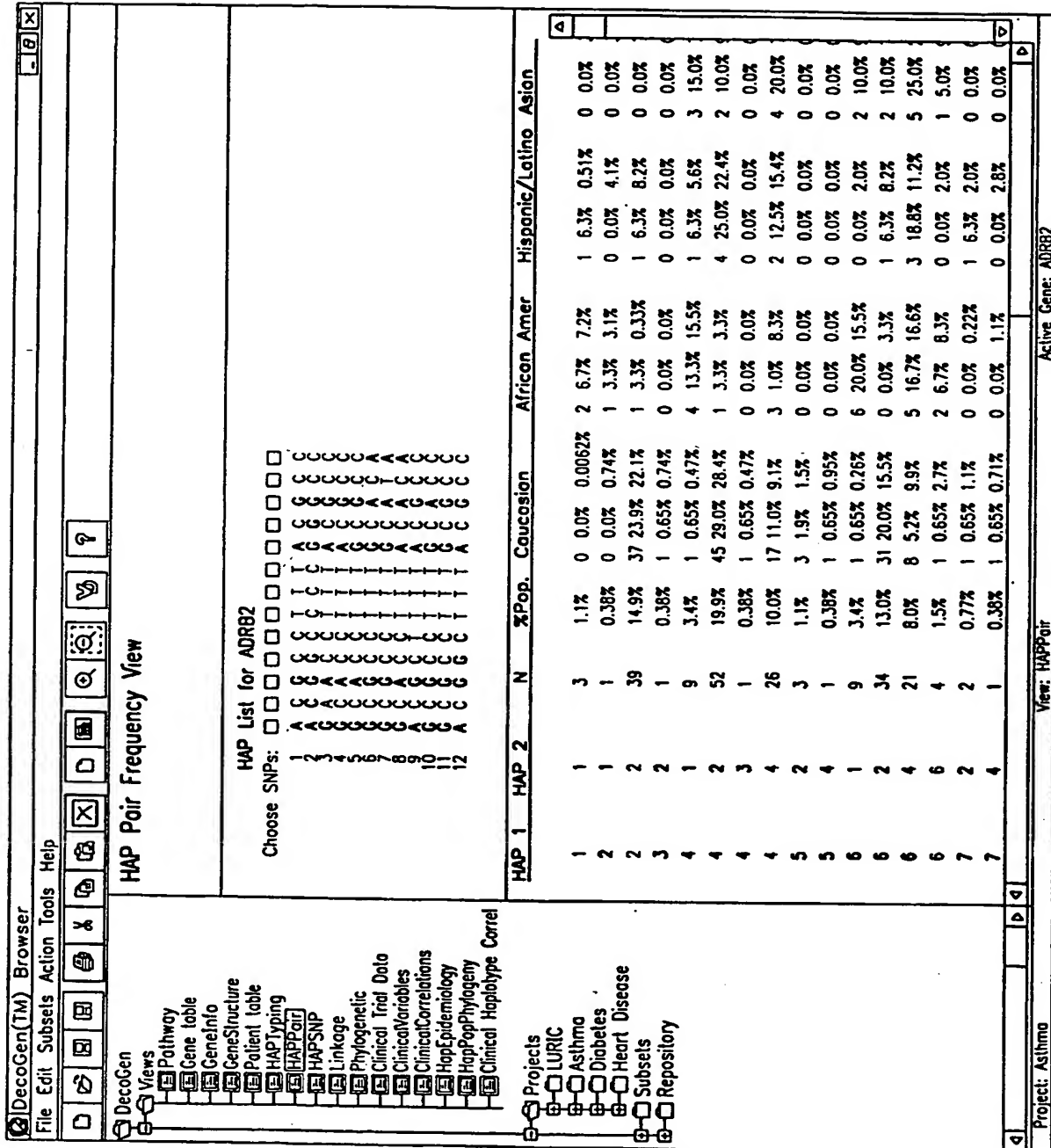


ॐ
ॐ
ॐ



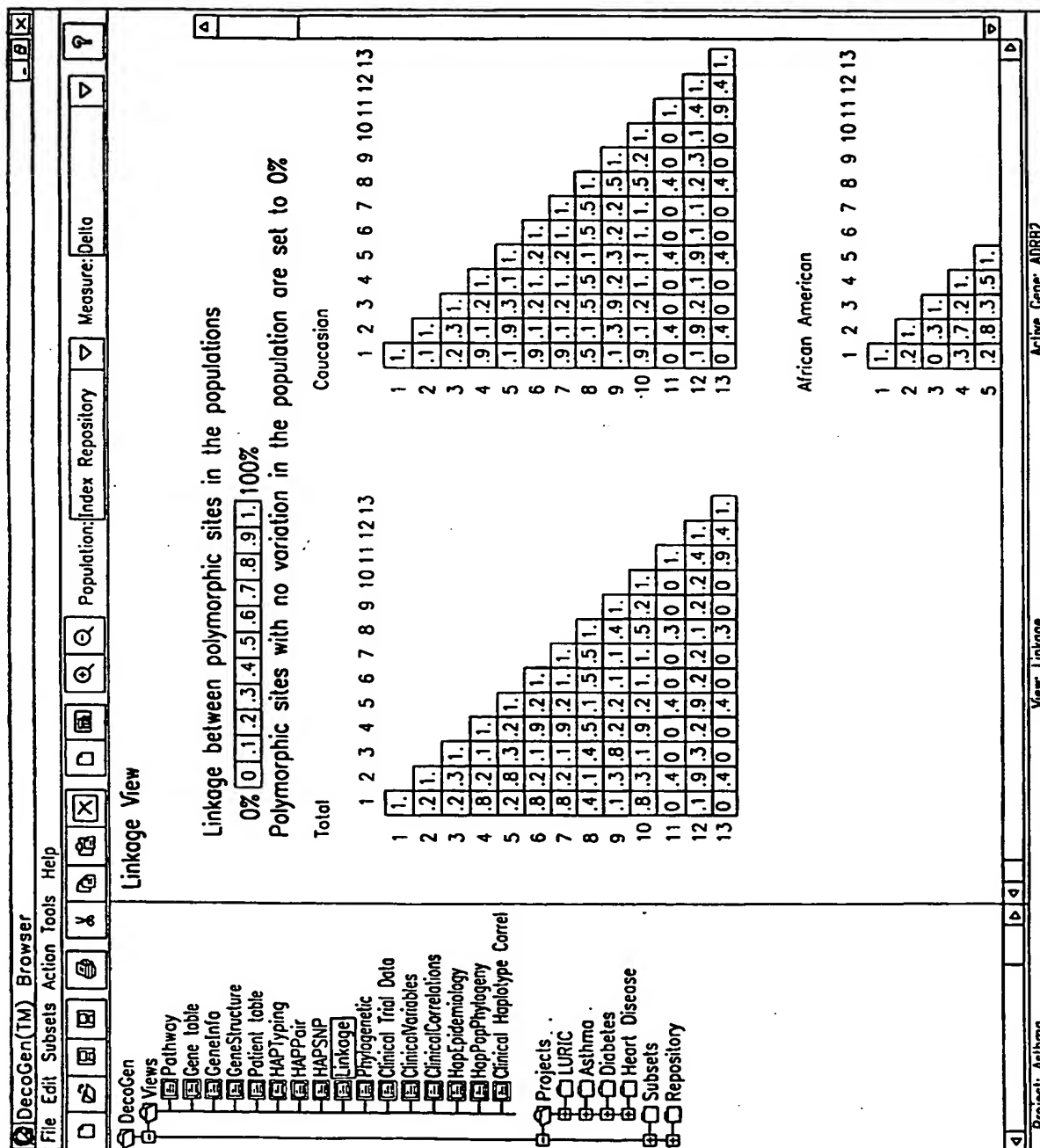
40 / 62

FIG. 32

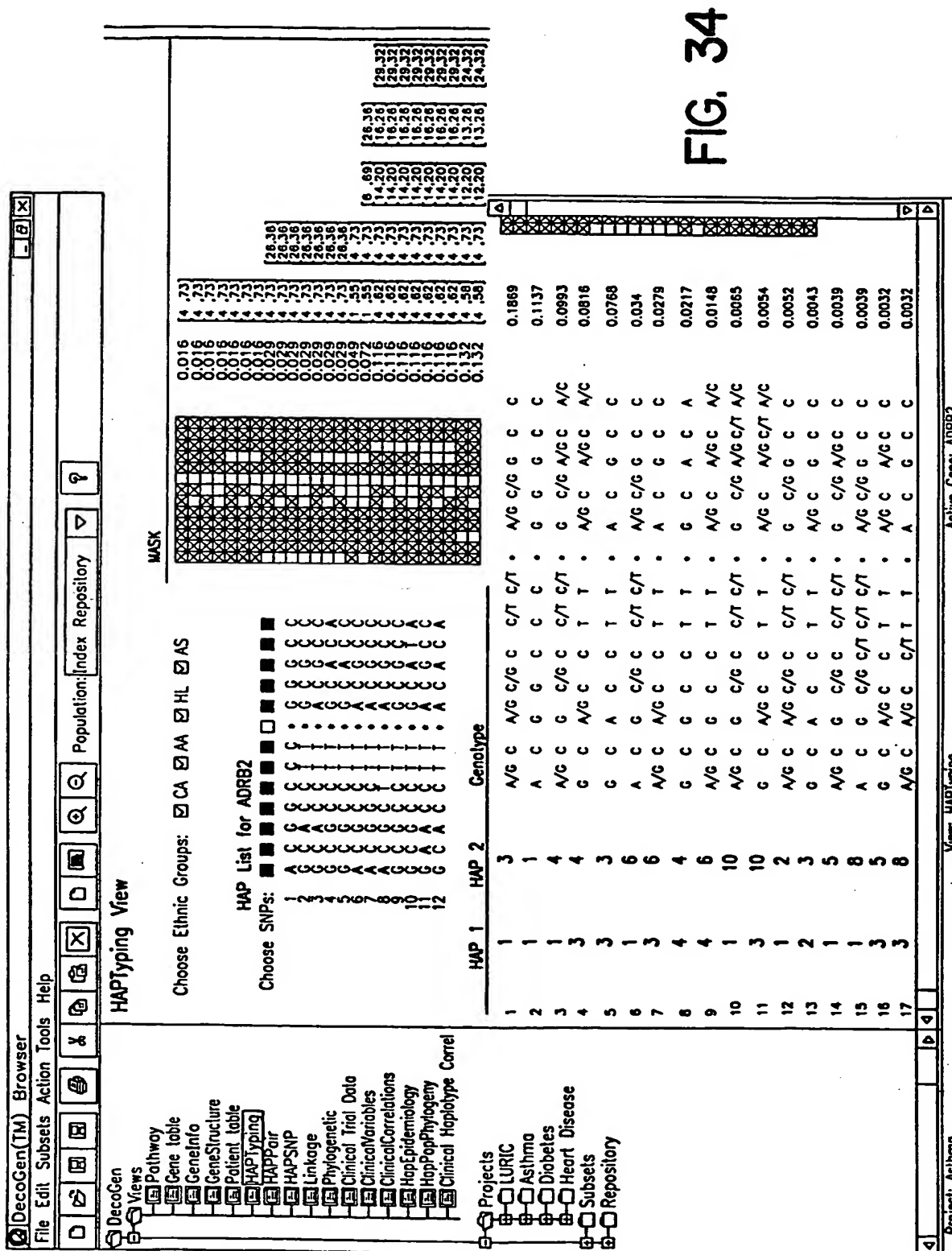


41/62

FIG. 33

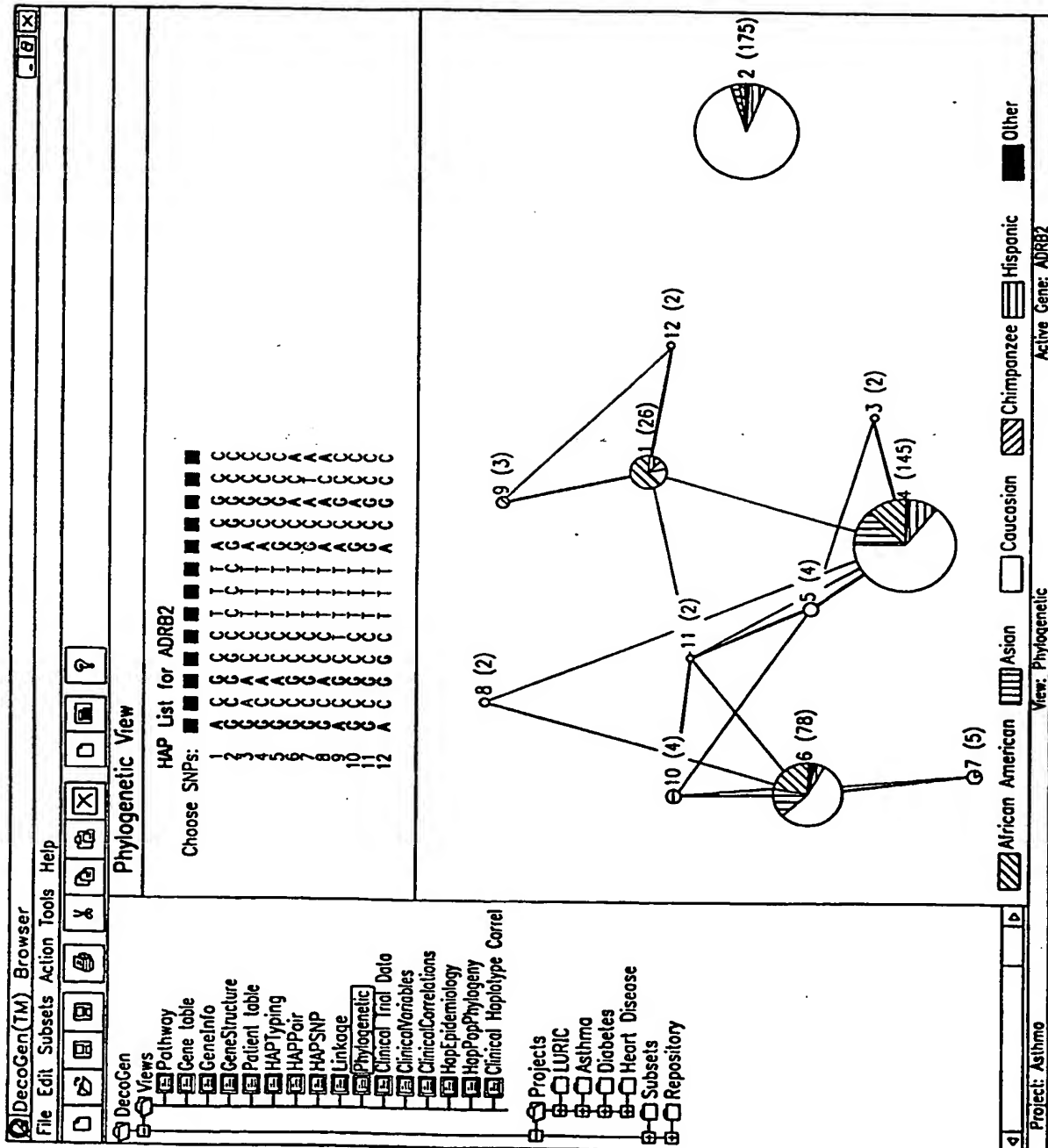


42/62



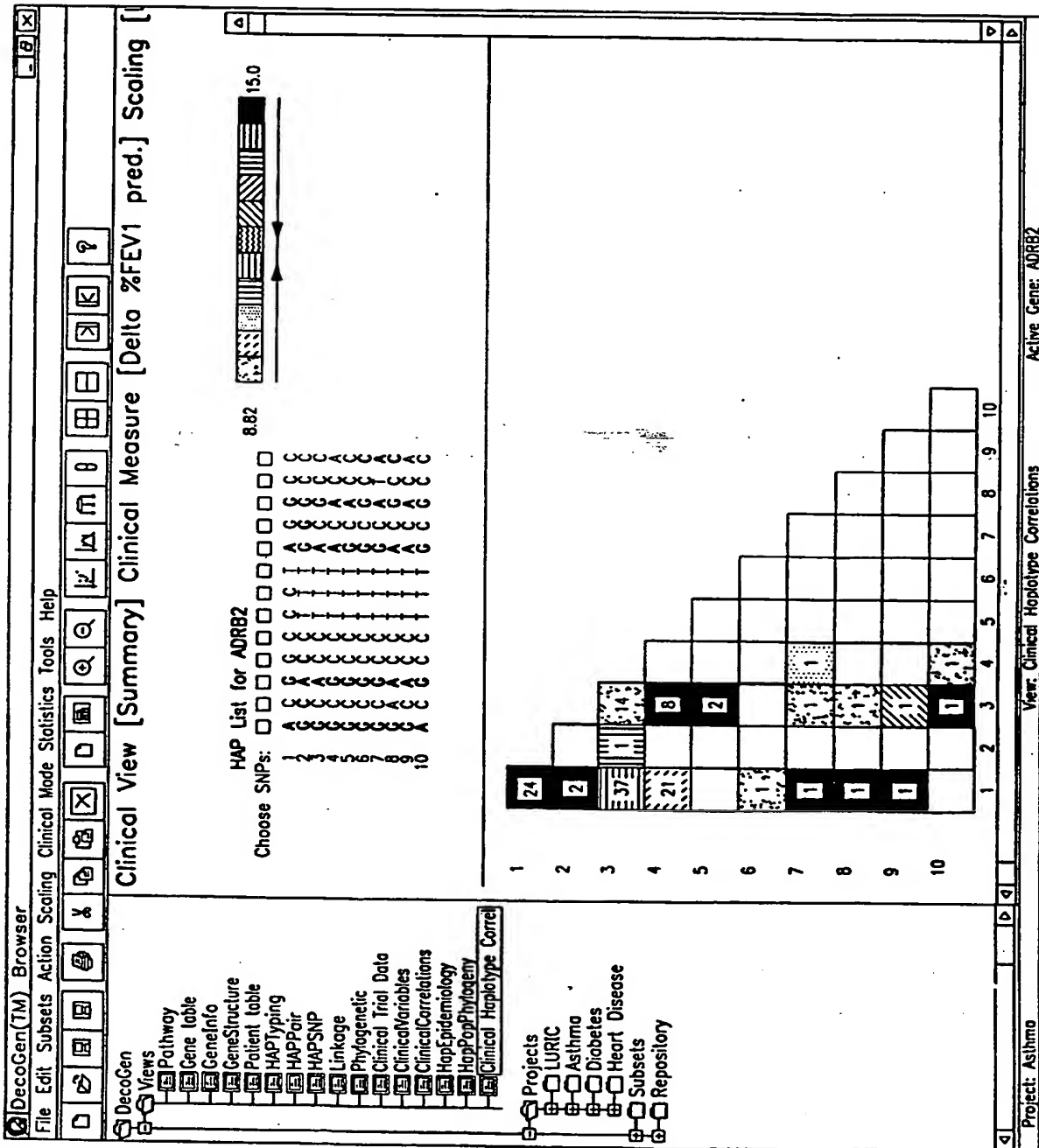
43/62

FIG. 35



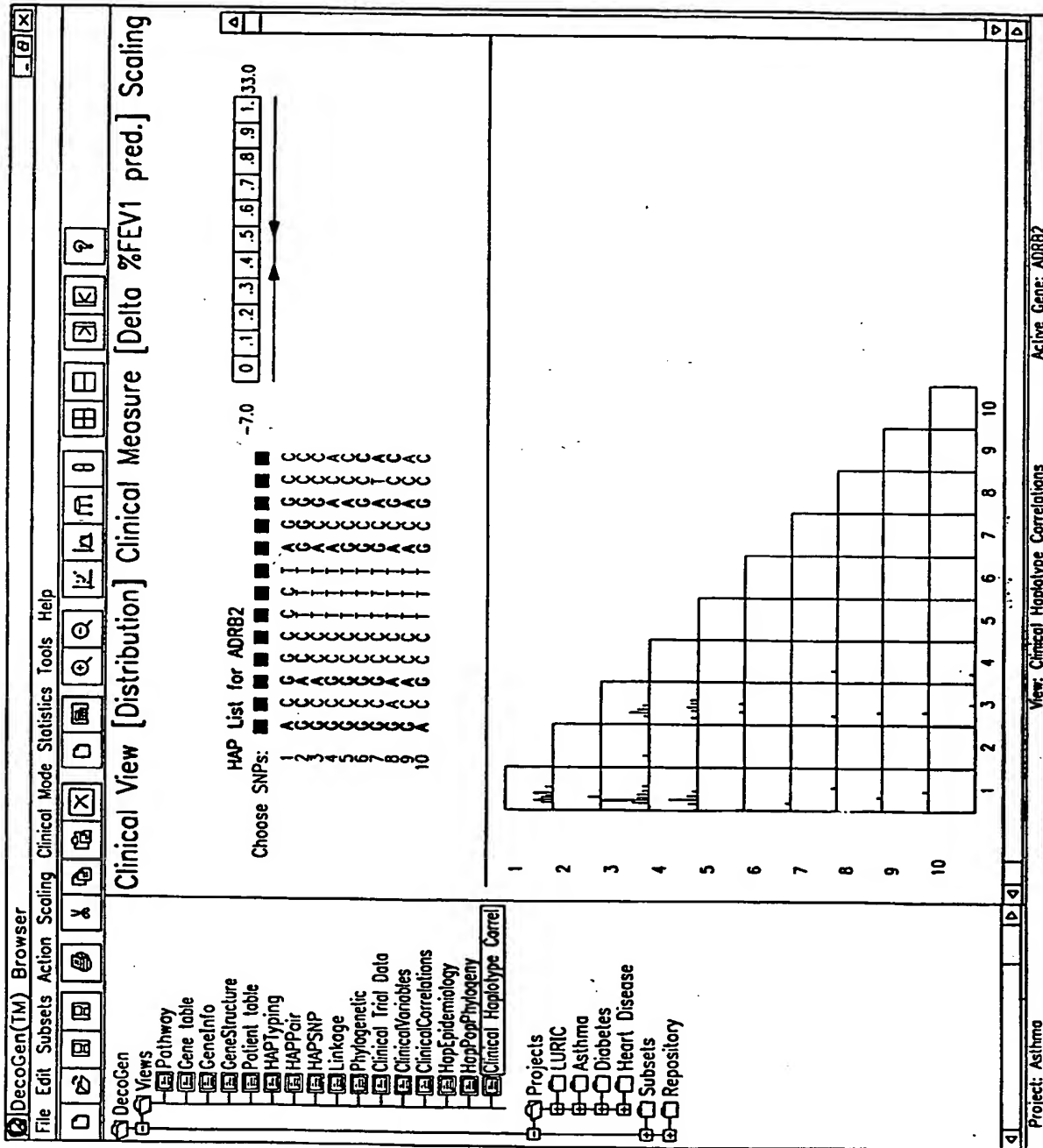
44/62

FIG. 36



45 / 62

FIG. 37



46 / 62

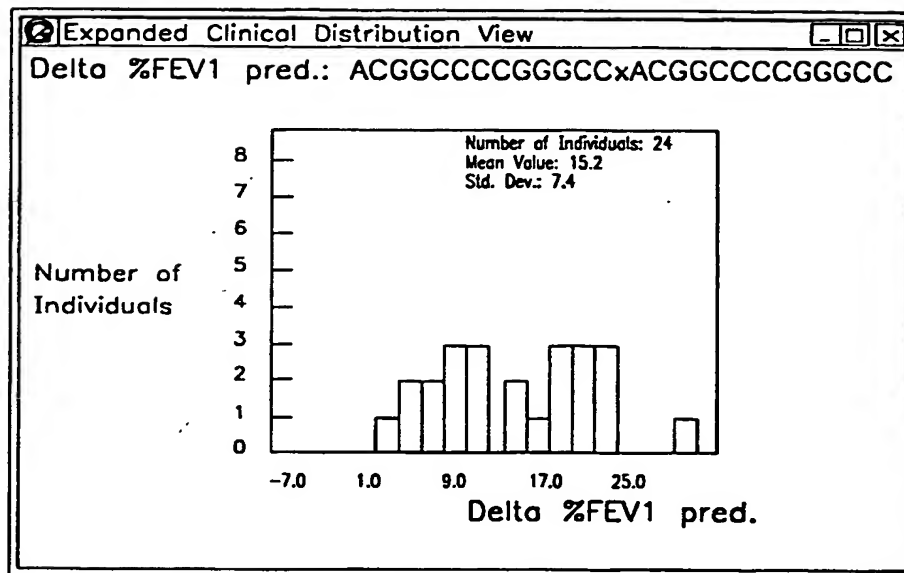


FIG. 38

47/62

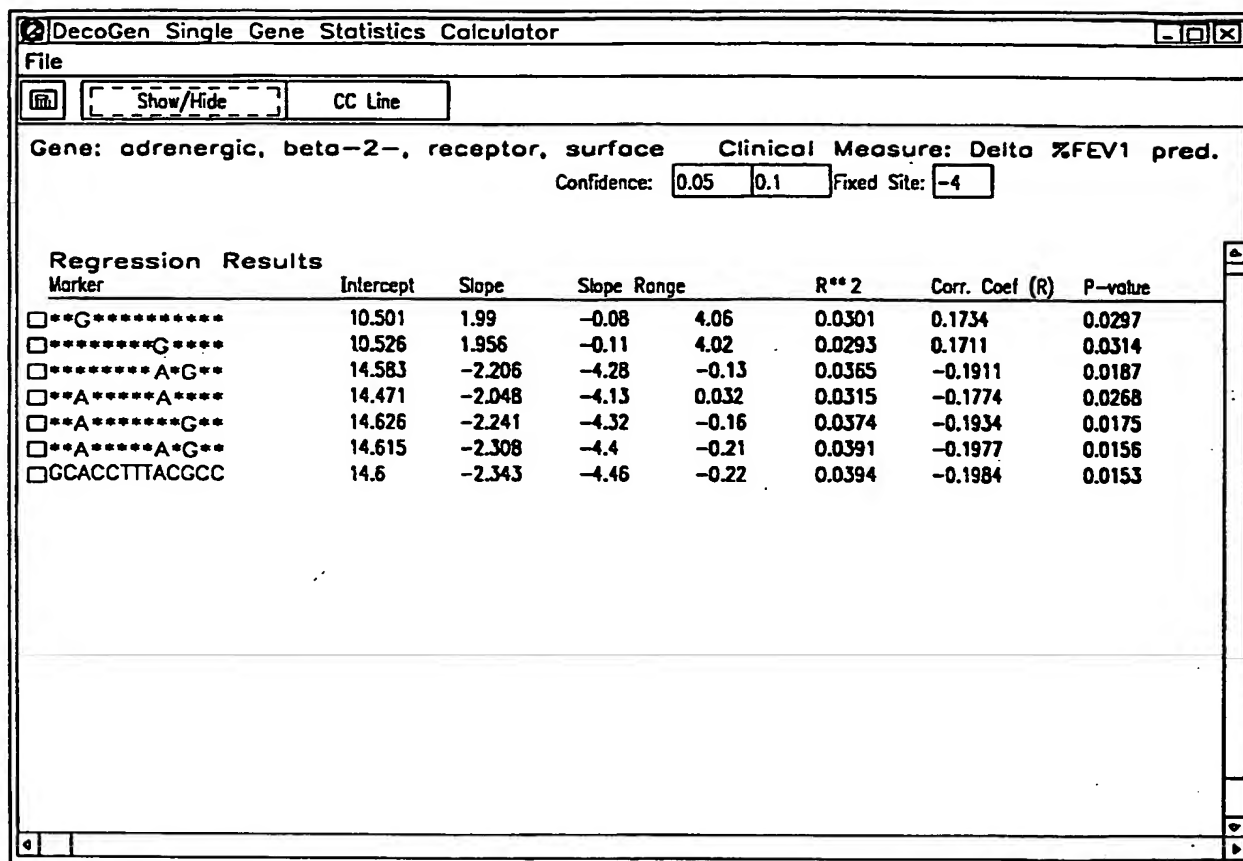


FIG. 39A

48 / 62

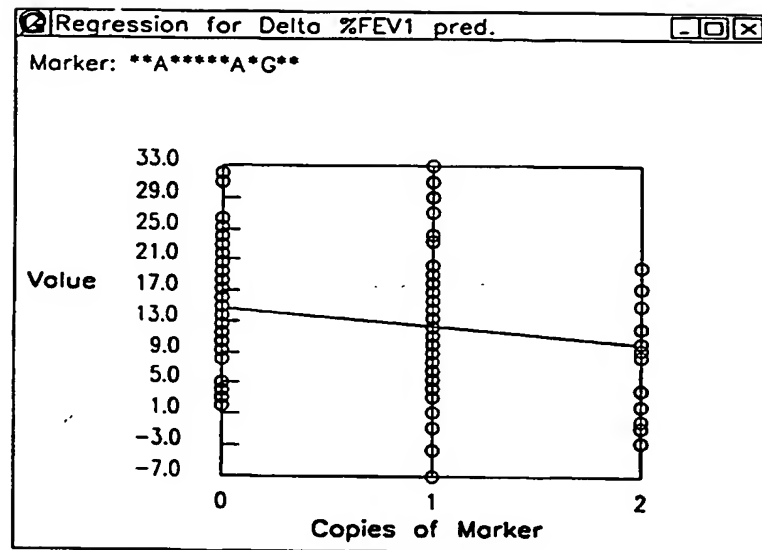
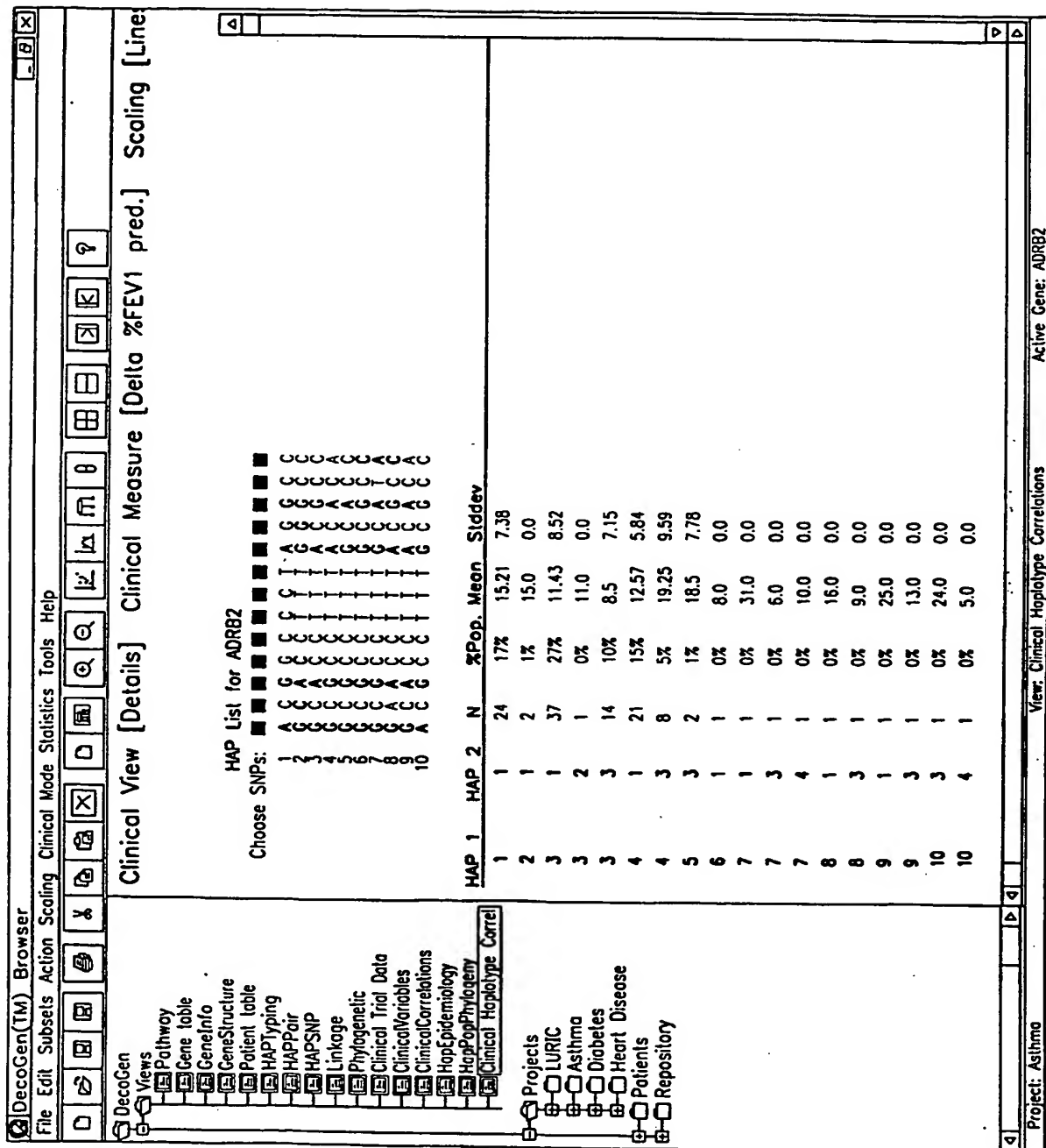


FIG. 39B

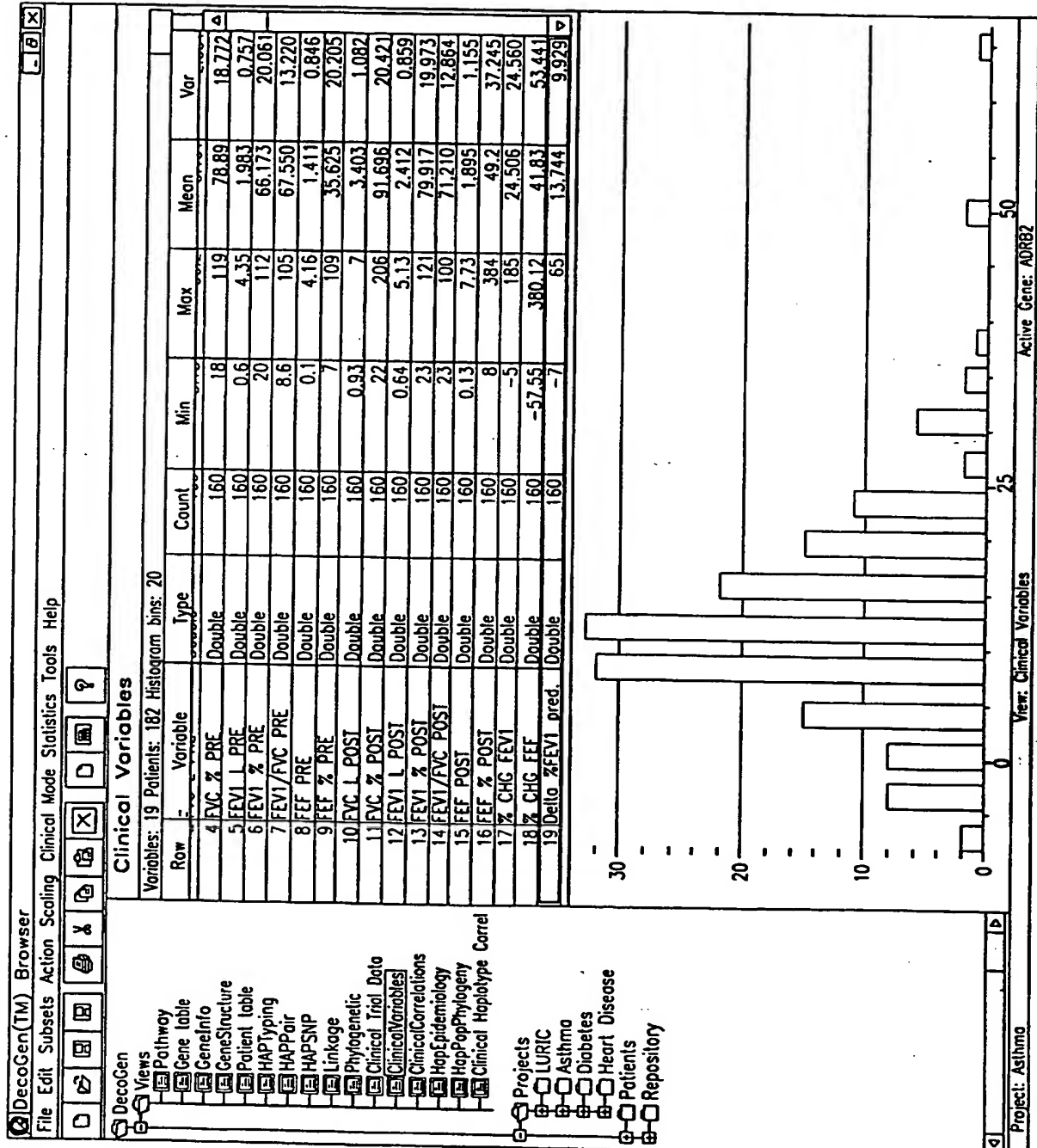
49 / 62

FIG. 40



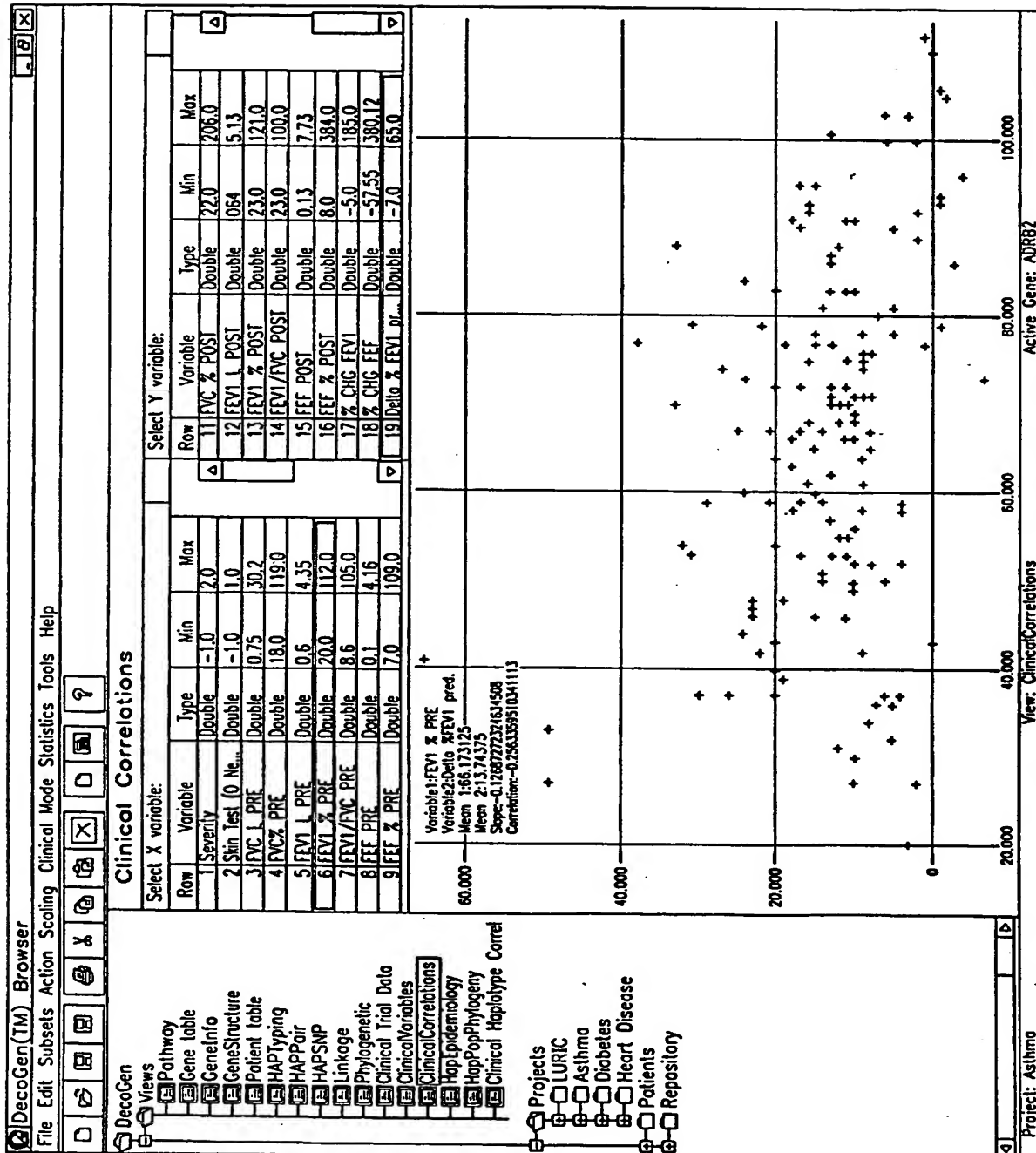
51 / 62

FIG. 42



52 / 62

FIG. 43



53 / 62

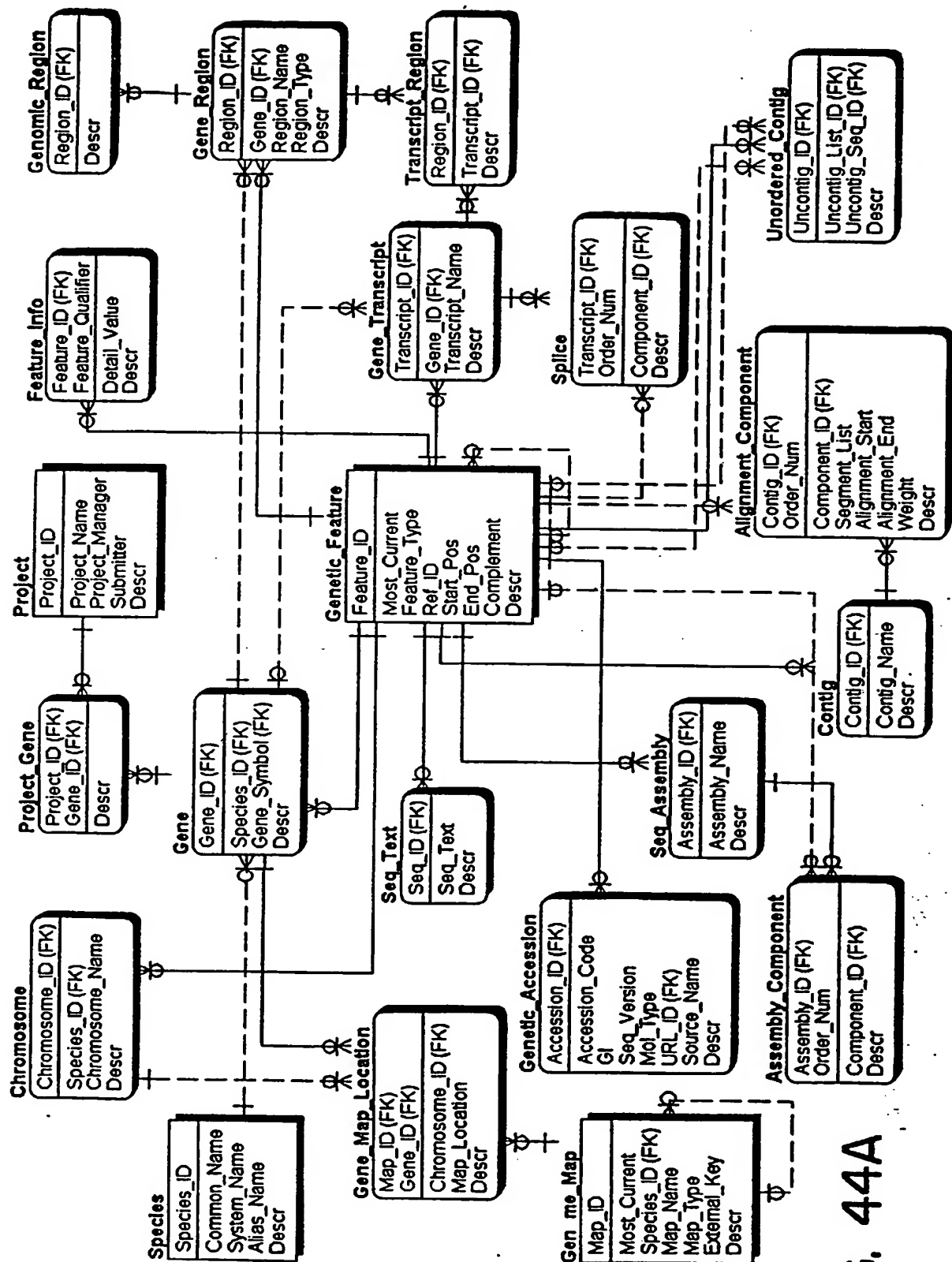


FIG. 44A

54 / 62

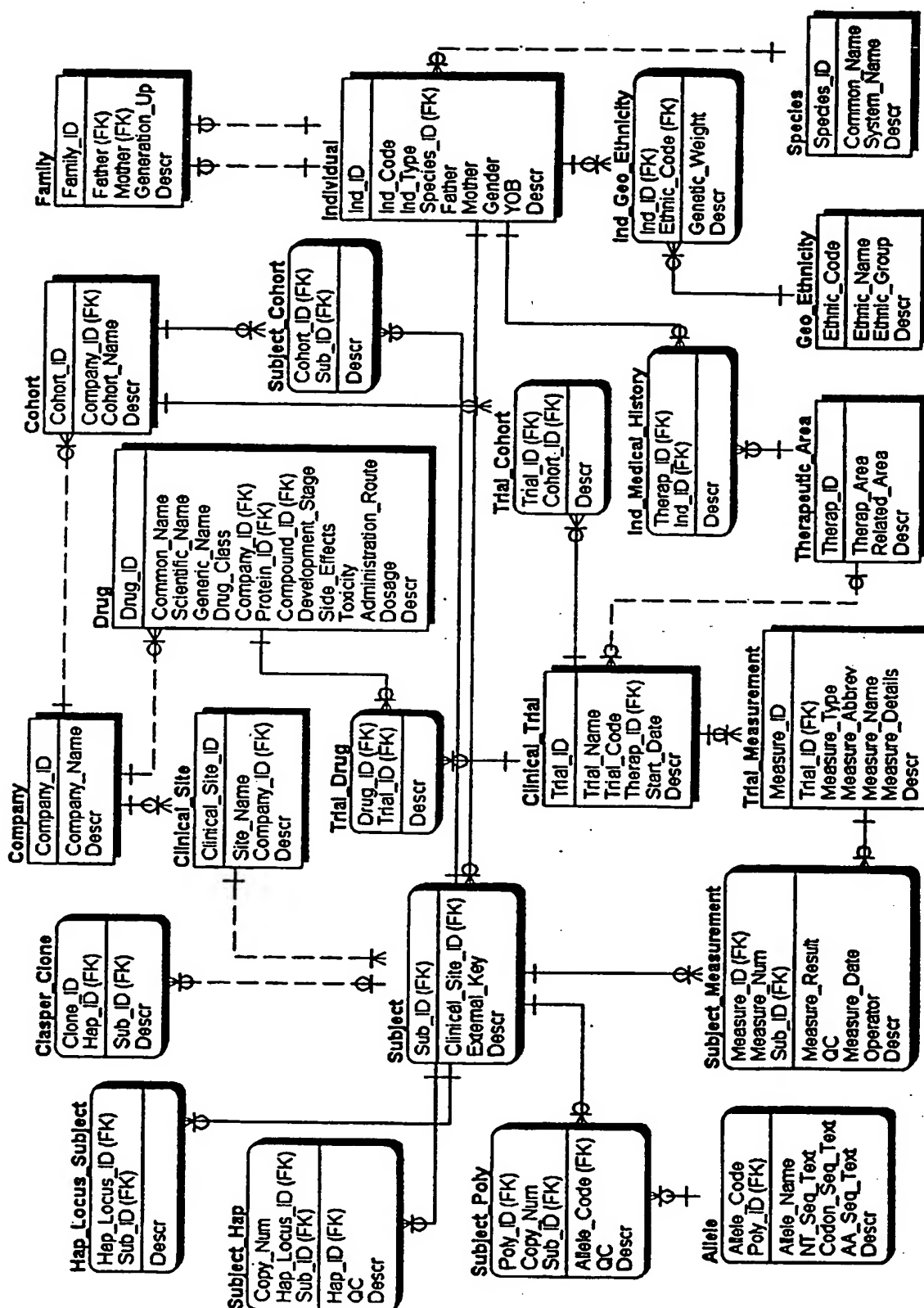
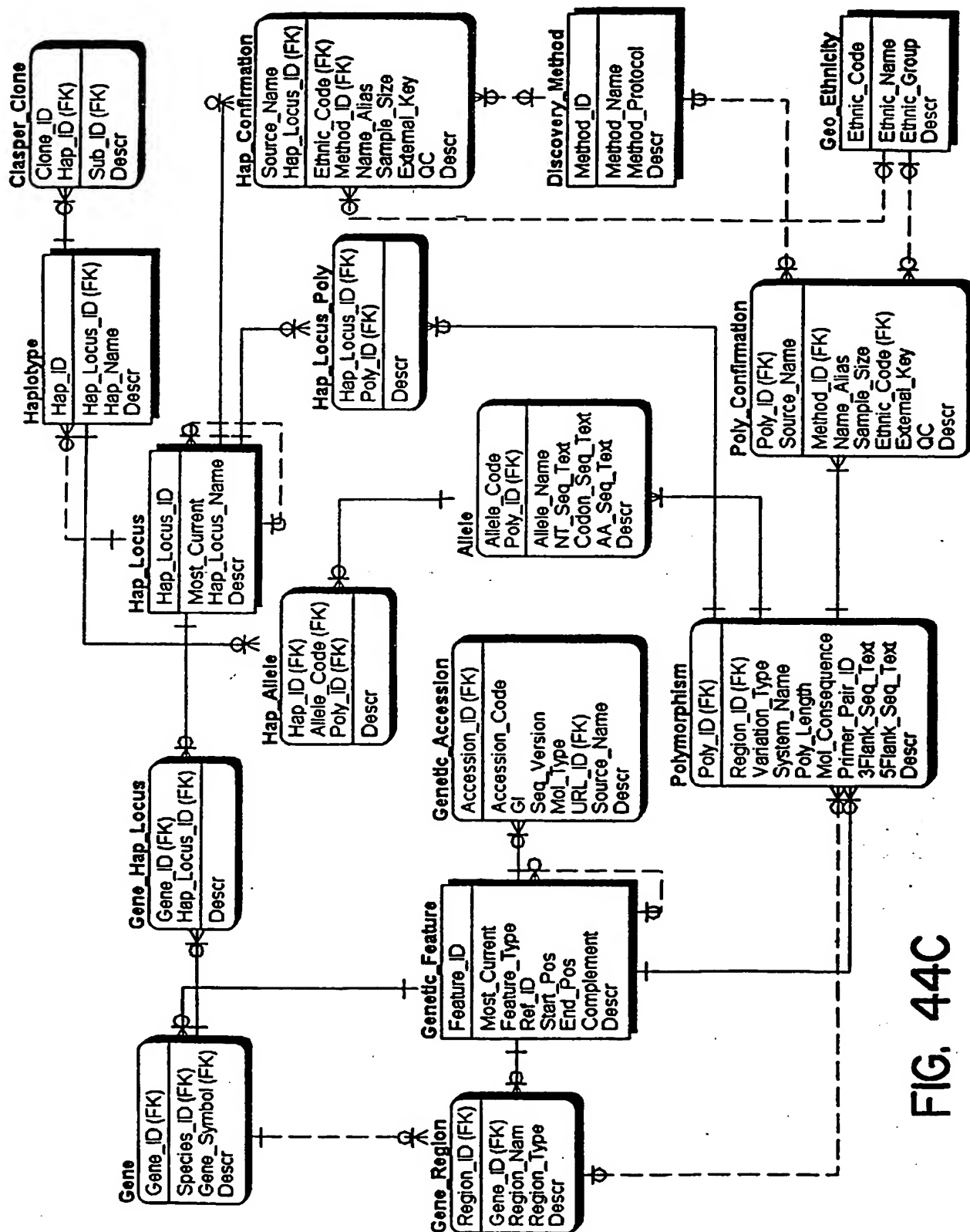


FIG. 44B



56 / 62

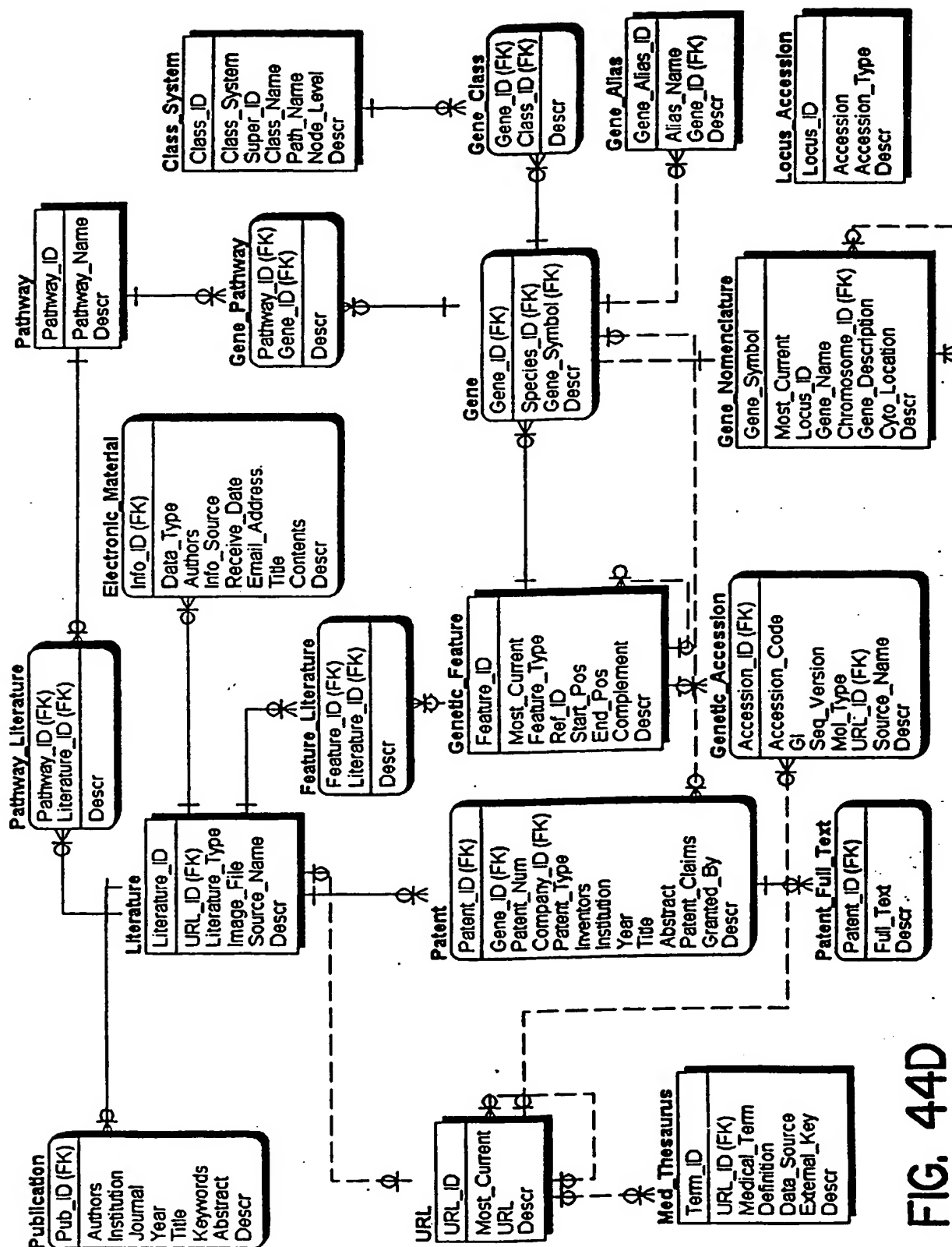


FIG. 44D

57 / 62

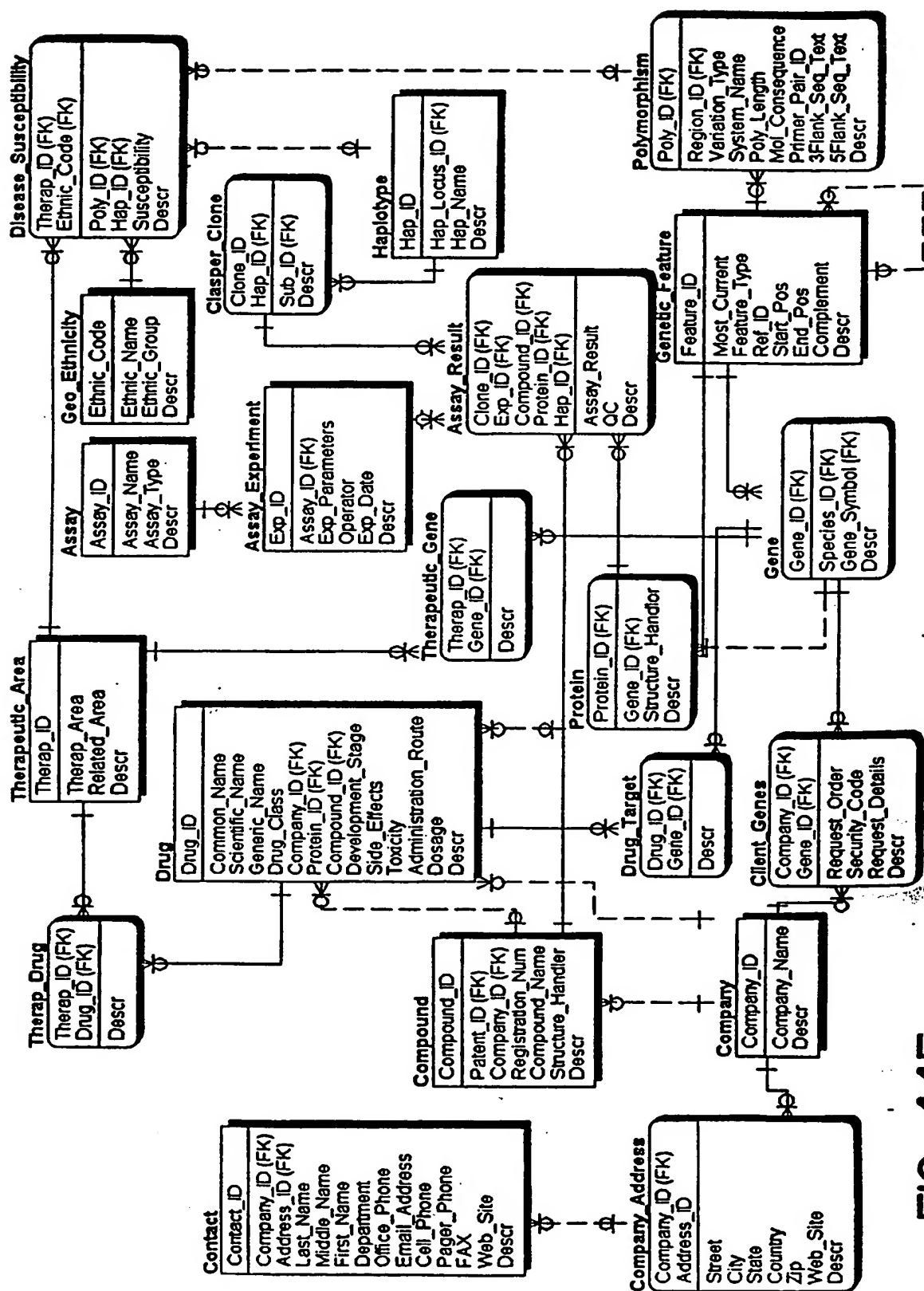
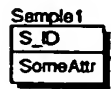


FIG. 44E

58 / 62

Legend of Figures:

Rectangle Boxes: Tables in the database.



Rounded Boxes: Children tables that depend on their parent tables. This dependency requires that a parent record to be in existence before a child record can be created.

- 2: Identifying parent / child relationship. It depicts the not nullable 1-to-0-or-many relationship.
- 4: Non-identifying parent / child relationship. It represents the nullable 0-or-1-to-many relationship.
- 6: Identifying parent / child relationship. It depicts the not nullable 1-to-1-or-many relationship.
- 8: Non-identifying parent / child relationship. It represents the not nullable 1-to-1-or-many relationship.
- 10: Identifying parent / child relationship. It depicts the not nullable 1-to-exact-1 relationship.
- 12: Non-identifying parent / child relationship. It represents the nullable 0-or-1-to-exact-1 relationship.
- 14: Non-identifying parent / child relationship. It represents the not nullable 0-or-1-to-many relationship.

FIG. 44F

59 / 62

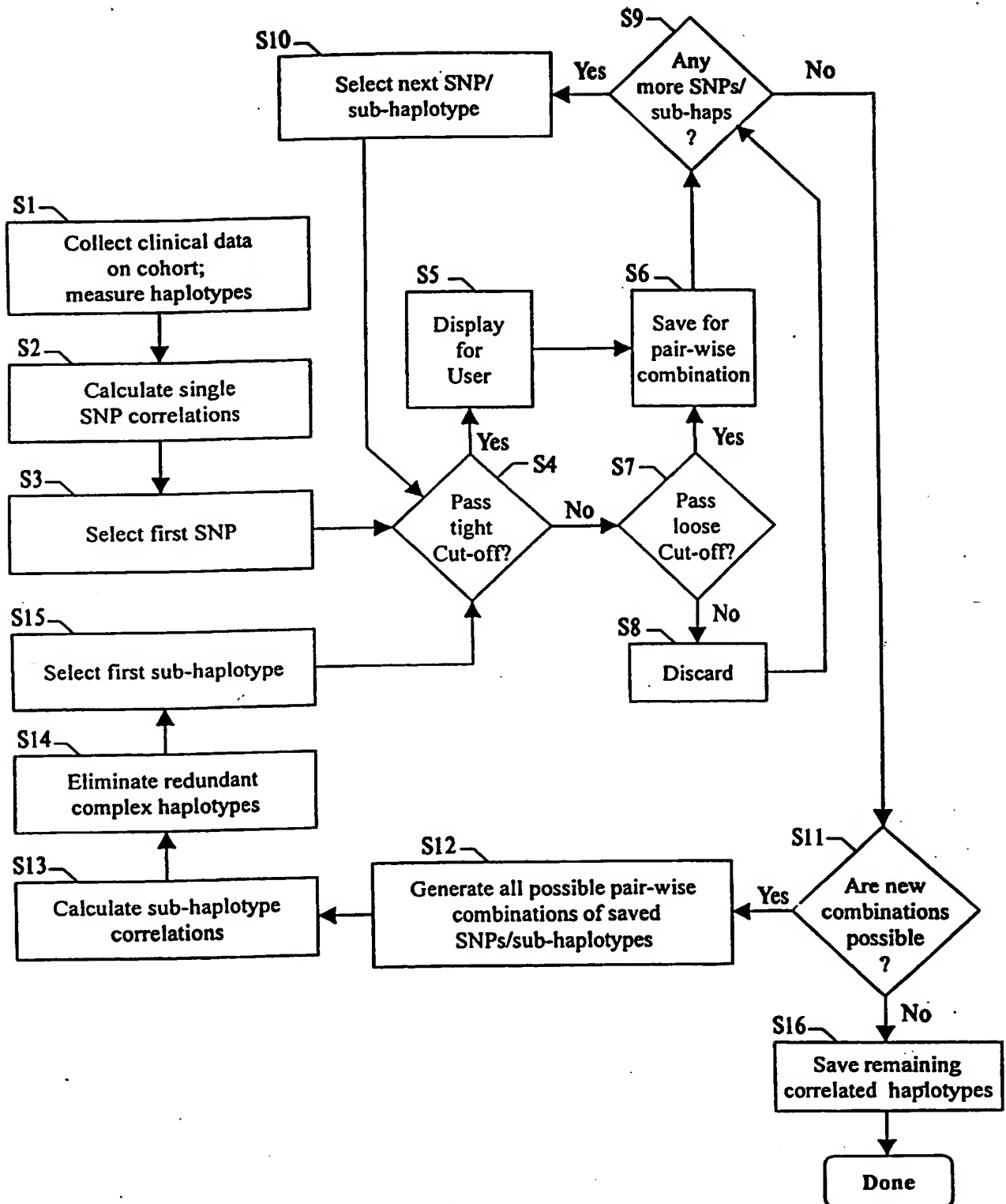


FIG. 45

SUBSTITUTE SHEET (RULE 26)

60 / 62

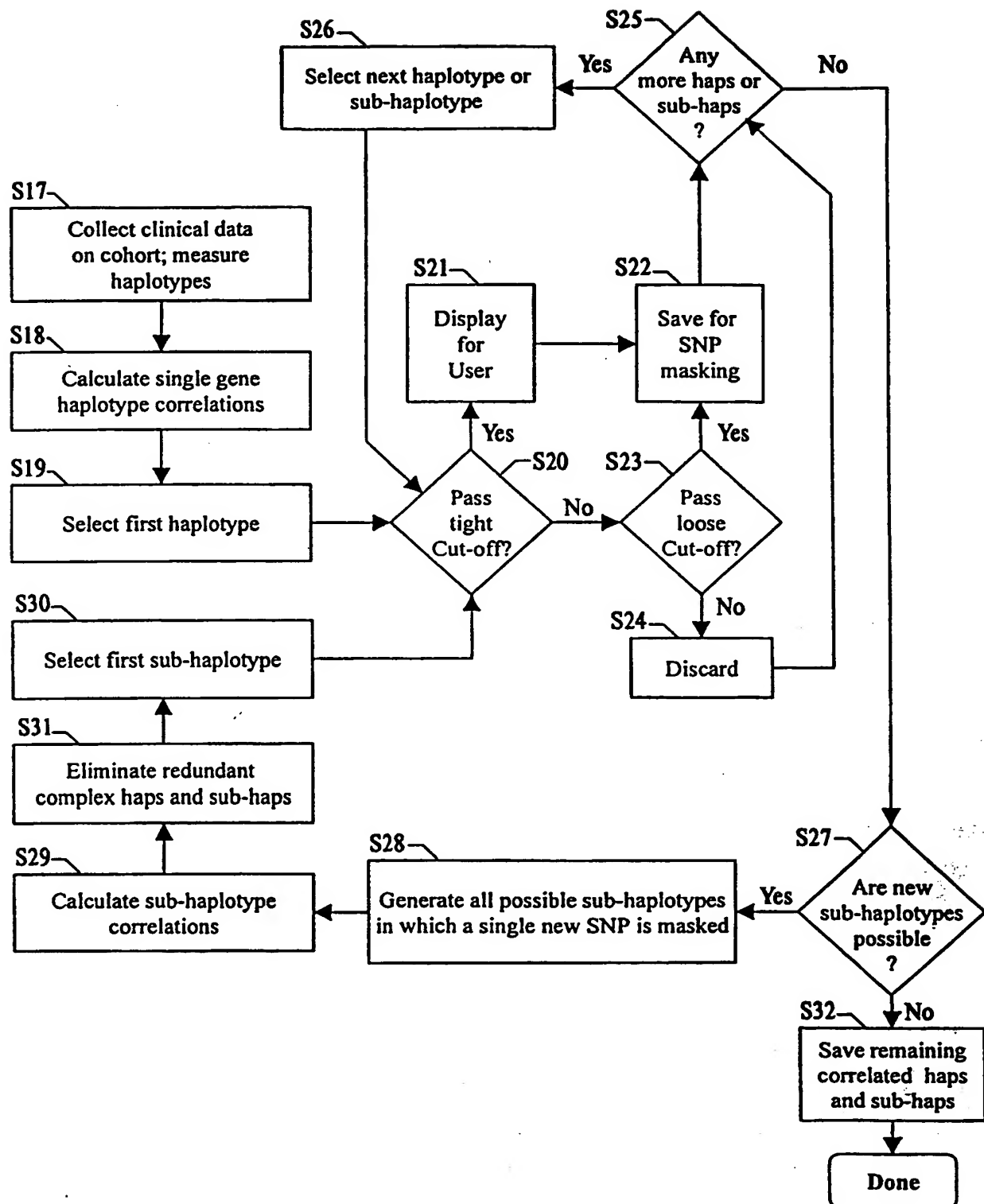


FIG. 46

61 / 62

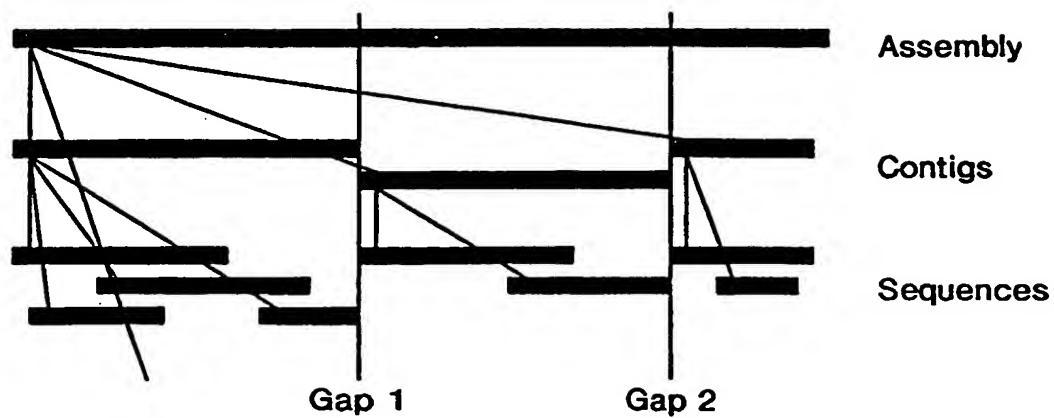


FIG. 47

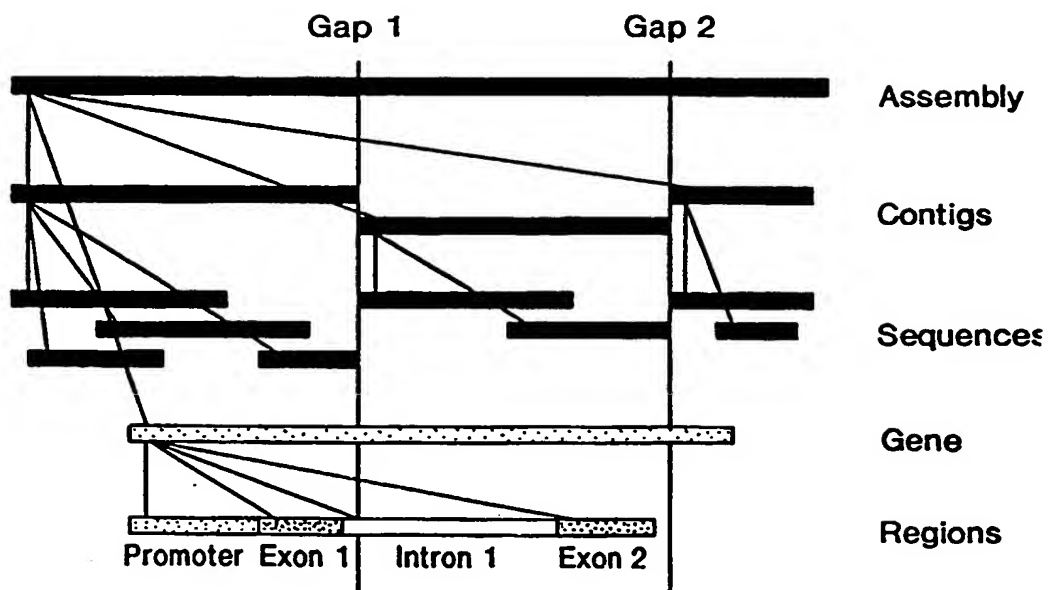


FIG. 48

62 / 62

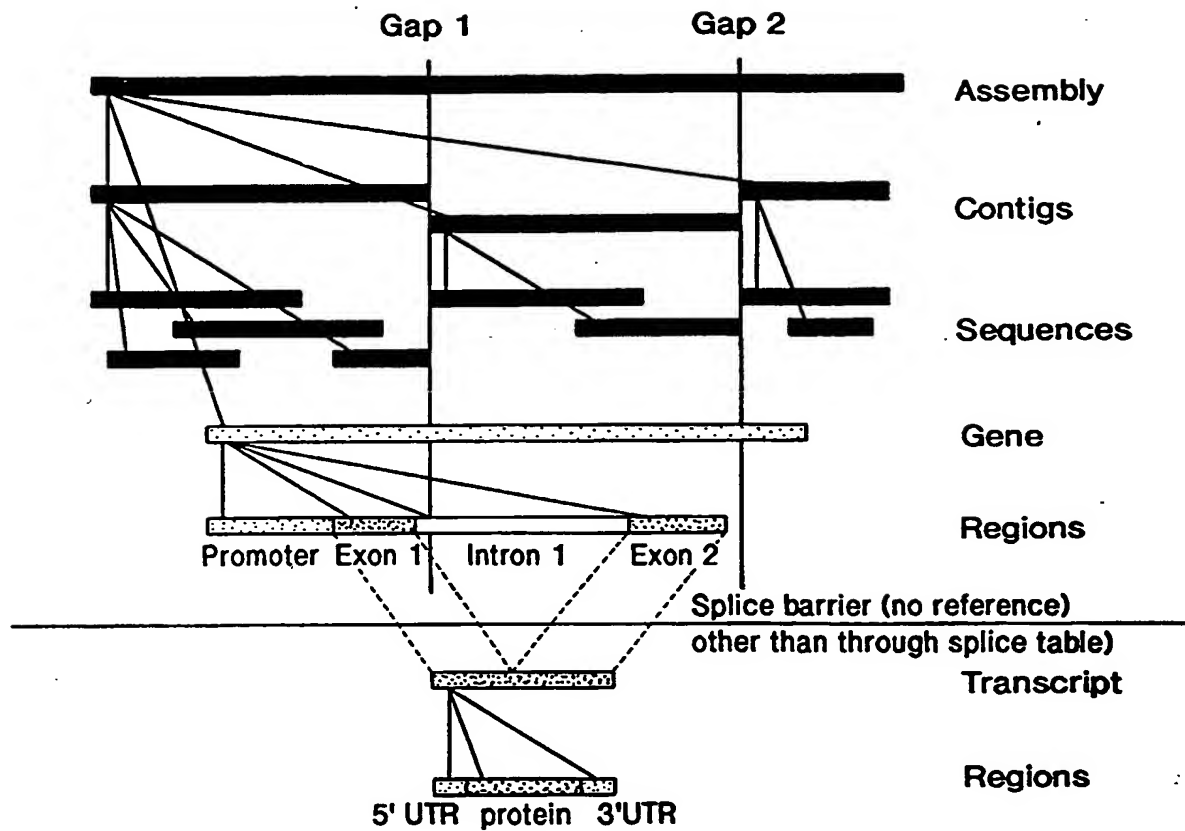


FIG. 49